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GANGRENE OF THE SCROTUM.*

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When requested to prepare a paper to be read before this society, now in session, it was my original intention to write an article treating of Gangrene of the Scrotum. But in the June number of the *Annals of Surgery* Dr. Albert Whiting, of Philadelphia, gives a paper read by him before the Philadelphia Academy of Surgery, Feb. 6th, 1905, in which this subject is treated so exhaustively that it seems quite needless for me to go into detail as to the general classification and etiology of the disease. Owing to this, and the fact that his paper has probably been read by the majority of physicians, I am unable to follow out my original intention, and will therefore report to you two cases of this disease coming recently under my observation.

The first case is one of fulminating gangrene. Koenig describes this variety as being of rapid and severe onset, and of short duration. Pronounced swelling and oedema, together with redness and emphysema of the scrotum, sets in within a few days. At the same time a high septic fever is present, which often

proves fatal before gangrene of the parts become pronounced.

CASE 1.—Wm. B., age 22, occupation boilermaker, robust health, family and personal history, together with habits, good. I was called on Friday, April 8th, 1904. The patient had had a chill, followed by temperature of 102.5, headache, and pain in limbs. Being unable after physical examination to find any real cause for these symptoms, and owing to the prevalence of la grippe at the time, I prescribed a dose of calomel, followed by salts.

Saturday the patient arose and was about the house all day, and ate three meals. Word was sent me that it would not be necessary to call again.

On Sunday evening, April 10th, 9 P. M., I was called and found patient with a temperature of 105°, pulse 120. Examination of chest and abdomen again proved negative, but on questioning he had an abrasion of the scrotum, and it felt uncomfortable. Inspection showed considerable swelling, and a purplish red discoloration over the lower one-half, and a small black spot about the size of a dime on the most dependent part of the

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dressing with alcohol to be applied, and scrotum supported by towels, calomel followed by salts, sponge baths for fever.

On Monday, April 11th, the morning temperature was 102.5. During the afternoon it rose to 106.5. The discoloration had extended over the entire scrotum, the black spot had increased in size. Tuesday, April 12th, the highest temperature recorded was 105. The discoloration and oedema had extended to the penis, which was very much swollen, rendering urination difficult. The patient was delirious.

The temperature on Wednesday, the 13th, was 104; this was the highest for the day. During the night he had a chill, and the patient was so delirious as to require two or three persons to hold him in bed. On the 14th he was quiet, but extremely weak. At 11:30 A. M. he had a hemorrhage from the nose, mouth and throat, and was found in a state of collapse a few moments later. Strychnia sulph. was given hypodermatically, also a dose of antistreptococci serum. On Friday, the 15th, I found that the patient had had a good night, delirium was almost entirely absent, but the gangrenous odor was very pronounced and the sheath of the penis was now black. Another injection of the serum was given. Hemorrhage from the nose. Temperature 103. Saturday, the 16th, the patient spent a good night, no delirium, temperature 102.8. Nourishment freely taken. On the 17th the highest temperature was 102.2. On the 18th the morning temperature was normal, afternoon 100; patient much improved.

I removed the entire scrotum, which was a gangrenous mass. Sloughs on penis not ready to separate. The highest temperature on the 19th was 99.2. On

the 20th the temperature did not rise above normal, the sloughs were removed from penis, the tongue showed signs of clearing and the appetite was increasing.

Whether the rapid improvement noted in the symptoms after the injection of the serum was due to its action, or whether it was merely coincident with the abatement of the gangrenous development in the disease remains a question. If due to the former I regret that I did not resort to it early in the disease.

The parietal layer of the tunica vaginalis was entirely destroyed, both testicles and the external portion of the spermatic cords as well as the corpora cavernosa and spongiosa were completely exposed. The parts were irrigated three times daily with boric acid solution, raw surfaces dusted with iodoform and moist boric acid dressings applied. Granulations rapidly formed, and within six weeks patient was perfectly well. There was some retraction of the cords. The new scrotum, although not as roomy as the one destroyed, is just as serviceable. Dr. Whiting reports thirty-six cases of this variety of gangrene found in medical literature, not including the case recently described by himself.

"He advises that after swelling of the scrotal tissues has commenced, free incisions should be made in all cases except those of non-inflammatory oedema."

I do not consider it good practice to make early and free incisions in this virulent form of infection. Free incisions may sometimes relieve tension and allow fluids and gases to escape from the tissues that are already gangrenous.

To incise before the circulation of blood and lymph has ceased would expose the patient to the danger of general systemic infection or pyaemia, and as it is

questionable whether early incisions in progressive gangrene of the extremities retard or arrest the process, I think the surgeon should be very cautious before resorting to this procedure.

My second case to report occurred under my care in the hospital of the Upper Peninsula branch prison.

Mr. S., age 34, French Canadian. History of gonorrhœa, followed by strictures. I made repeated attempts at passing filiform bougies into the bladder, but failed. After each attempt patient would have a severe chill. I was finally induced to do an internal urethrotomy with a Gross urethrotome, an instrument so devised that when the point is engaged the hidden knife will cut forward instead of backward, and a false passage is easily made. My experience in this case taught me that if it is impossible to use the Otis urethrotome to resort either to the Wheelhouse* or Cook's operations.

Patient was operated upon April 8th, 1905. After the operation had no difficulty in passing urine and had no chill or fever. He was up and apparently well.

April 10th a sound was passed, no history of chill following this procedure. April 14th sound was passed, followed by severe chill and fever. From this time on the patient had chills almost every day and his temperature ranged between 100 and 104 $\frac{3}{5}$ for an entire week. The perineum became quite tense and the scrotum, penis, and anterior layers of the abdominal wall were very much swollen. I made numerous and repeated punctures into the scrotum and penis allowing considerable bloody serum to escape. The

abdominal wall was incised and two large drainage tubes put in place and a large quantity of pus was liberated. The abdominal wall from the pubes to midway to the umbilicus and extending latterly to the anterior superior spines of the ilii became gangrenous and was removed in one immense slough. The destructive process in the median line extended through the abdominal wall and the wall of the bladder, causing a vesical fistula. The entire sheath of the penis sloughed and was removed; a urethral fistula was the result. Only about one-third of the scrotum was destroyed, exposing the right testicle. The patient has made an uneventful recovery. Both fistulous openings are closed, the testicle, penis and abdominal surfaces are all covered with integument.

Dysmenorrhea at Puberty, and Uterine Tumors.—Frank DeWitt Reese presents the following two questions: (1) Is dysmenorrhea a symptom denoting the presence of uterine fibroids at puberty? (2) Are the causes of dysmenorrhea exciting causes of fibroid tumors of the uterus? As a result of his own experience and of the statements of other authors he considers that there is no doubt that fibroid tumors exist in utero previous to menstruation and are the exciting causes of dysmenorrhea in many cases. Of the last thirty-one cases of uterine fibroids that have come under the author's observation, all with but one exception have begun menstruation with severe pain. He also believes that the various causes of dysmenorrhea are possible causes of uterine fibroids, and cites numerous observations from the literature in support of this view. An illustrative case is described, showing the following four stages of progress in the evolution of the tumor: (1) Dysmenorrhea at puberty; (2) a deformity of the uterus (extreme ante flexion) discovered at the first local examination, at the age of 30 years; (3) at 36 years of age there were backache, leucorrhœa, and an enlarged uterus with a hard, uneven surface; (4) at 38, a tumor of the uterus had developed to such an extent that the patient detected it herself through the abdominal walls. The indications, accordingly, are to relieve the causes of dysmenorrhea at puberty in order to avoid the necessity of operating on fibroid tumors later.—*Medical Record*, December 23, 1905.

*Wheelhouse operation is an external urethrotomy with a guide, and Cook's operation is external urethrotomy without a guide.

THE USES AND THE ABUSES OF THE OBSTETRIC FORCEPS.*

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The time has long since gone by in which it was necessary to argue the proposition that the obstetric forceps is a great boon to the child-bearing woman. Unfortunately, however, the converse of the proposition still admits of discussion and not only admits, but positively demands it. The obstetric forceps is like the two-edged sword which, unless employed very circumspectly, while doing good may also at the same time do much harm. It is meet that we occasionally review the value of even our instruments of precision, and this fact has determined the selection of the title of this paper.

The essentials of the obstetric forceps are a proper cephalic curve (three inches between blades) and the proper pelvic curve (tips of blades three and one-half inches higher than handles). An instrument possessing these is, regardless of the numerous modifications which have been made in other particulars, adapted to the requirements of the obstetrician. It is thus apparent that the chief value of many of the modifications of the instrument in the market is their service as an excuse for the attachment to them of their inventors' names. It was for a long time apparently thought necessary to distinction in obstetrics that the practitioner should have devised some modification of the obstetric forceps. Distinction in this respect is now, however, no more dependent on a forceps than is a gynecologist's reputation dependent on his devising

some new kink in a vaginal speculum. The limit has for some time been reached and it will be a genius indeed who suggests anything new in either of these instruments.

On entering the practice I introduced the Bedford forceps into my obstetric outfit, that being the instrument most in favor in those days. I afterwards added a short pair with only the cephalic curve for low application, and for upwards of twenty-five years these were made to do service. Frequent calls in consultation in cases in which the ordinary long forceps had been unsuccessfully applied, as well as the occasional necessity for the high application in my own practice, induced me to procure a Tarnier axis-traction forceps. These three pairs proved a cumbersome load to carry about, and for the past ten years I have carried only the latter instrument. I find it well adapted to low and median application, while it is incomparably superior to all others in high applications. In median and low cases it may be used without the traction rods.

The introduction of the axis-traction forceps marks a very decided advance in the art of obstetrics, insuring as it does the application of the extractive force in the line of the axis of the pelvic outlet. This *sine qua non* cannot be secured by the use of any other instrument, especially in cases higher up than the median position. The skill which grows from experience may do much to guard against the lamentable results of violent traction with the ordinary long forceps, but no degree of aptitude can absolutely elimin-

*Read at Annual Meeting of Michigan State Medical Society, Petoskey, 1905, and approved for publication by Committee on Publication of the Council.

ate these results. The gynecologist's clientele is largely recruited from the results of the employment of the ordinary long forceps.

While the chief function of the obstetric forceps, and that for which it is primarily employed, is traction, the incidental uses are important, namely, for rotation and stimulation. It is also employed with questionable propriety as a dilator and as a compressor.

A word of protest against the application of severe tractile force. I speak from the experience which I have had in common, probably, with all who have essayed an instrumental delivery. Early in my practice I attended a woman in whom the dystocia was very marked. After the head had been engaged and the os fully dilated for five hours, I applied the forceps in the median position. Traction with all the force I had was continued for half an hour without securing appreciable advance. Having rested for half an hour I repeated the procedure. Thoroughly exhausted, I asked for consultation, and a gentleman, now deceased, at that time an obstetrician of very extensive experience and well-earned reputation, was called in. He was a large, powerful man, and the presentation being normal he approached the case with much confidence. The result, however, of his violent traction was no more satisfactory than it had been in my own hands. He then suggested, after a rest, that we unite our forces. He braced himself with his feet against the bed and the woman's buttocks. By reaching over his shoulders I secured a hold on the handles and we thus applied our conjoined strength, which it is reasonable to believe amounted to upwards of 400 pounds. It will be remembered that the instrument employed was

the ordinary long Bedford forceps. The child was delivered dead, and the injury to the woman's soft parts as well as to her bony structure was, to put it mildly, very serious indeed. The soft parts were immediately repaired, but the injury to the bones was such as to confine the woman to her bed for upwards of four months, at the end of which time she was still an invalid. The violent force had apparently developed a periostitis from which the woman suffered for upwards of two years. The lesson made a strong impression on my mind. I have never since been guilty of employing any such degree of force or of countenancing its employment in any case in which I have been called in consultation. In one case subsequently this force was employed contrary to my judgment and consent and the results of this were scarcely more satisfactory than those in the first instance. I appreciate the fact that it is impossible to lay down any hard and fast rule covering the exact amount of traction which may be employed with safety, but would suggest that a force of over 100 pounds should not be employed. The tentative use of the forceps may be thus fully tested and should it appear that a greater force than this would be necessary, a much safer procedure, both in the interests of the mother and the child, would be podalic version.

The correct application of the forceps presupposes a correct diagnosis of the presentation. Not many years ago I heard a teacher of obstetrics lecturing to his class on the use of the forceps, and was much impressed with the simplicity of the rule which he laid down. He actually insisted that all the rules for determining the presentation were interesting from a purely theoretical stand-

point, but that in actual practice the diagnosis of the presentation was absolutely unnecessary. "First set and lock the blades of your forceps and lay them on the bed beside the woman. You will thus make no mistake as to the proper blade to apply on each side. Simply introduce the first blade and then the second and manipulate the two until you get a complete lock, allowing the handles to come in contact. All that will be necessary after this will be for you to pull; nature will attend to the details of rotation, flexion, etc." I have given the learned gentleman's words as nearly as I can reproduce them and submit them without further comment.

The late Professor Sager, of the University of Michigan, was wont to simplify the instructions for the application of forceps with the dictum, "hunt for the posterior ear, and having found this, cover it up with the first blade. Introduce the second blade immediately opposite, then lock and pull." There could scarcely be laid down more reliable and simple working rule. It, of course, admits of criticism, but if strictly followed out little harm is likely to follow. My preceptor early impressed me with the necessity of first clearly diagnosing the presentation by using the familiar illustration of extracting a cork from an empty bottle. Unless the diameters of the cork are properly adjusted to those of the neck of the bottle an undue amount of traction will be necessary.

It is, not infrequently, very difficult, if not quite impossible, to locate the landmarks (the fontanelles) on the child's head. The most expert diagnostician occasionally finds himself at sea in such cases, and to apply the forceps to the occiput posterior head, under the supposi-

tion that the presentation is occiput anterior, is a procedure likely to be fraught with dire consequences. It is here that proficiency in diagnosis by external palpation is invaluable. The medical school which confers its diploma on a young man who intends to practice obstetrics, without having satisfied itself of his proficiency in making a diagnosis of the presentation of the child by external palpation, has laid upon itself a heavy load of responsibility. I speak from personal experience, having been sent out with authority to practice the art before diagnosis by external palpation was taught. It took me many years to acquire the necessary *tactus eruditus* and even with the aid of the explicit instructions which subsequent text-books laid down, progress was slow, with the limited amount of material afforded by private practice on which to practice the technique of the procedure. Fortunately I had learned the lesson of patience early, and consequently in my cases of forceps delivery the low application very largely prevailed.

The direction of the tractile force is important; regardless of the position of the head this force should be applied obliquely downward toward the anus until the head impinges on the perineum. This direction is most certainly secured by turning the woman on her side. After the head has been brought to the perineum she may be returned to the dorsal position. Unquestionably much injury has resulted from a disregard of this rule. Having reached the perineum the handles of the forceps should be gradually raised until they come quite in contact with the pubis. To guard against the employment of undue force the operator should work with flexed arms, the elbows being

closely held to the thorax. The bracing of the feet against the woman's buttocks or the side of the bed and pulling from the shoulders, thus adding the body force, is a procedure to be referred to only to be unreservedly condemned. Brute force has no place in the lying-in room.

The forceps is employed as a rotary in occiput presentations. When the small fontanelle is found in the lower quadrant the head having reached mid position and the os fully dilated, the hand should be introduced to assist rotation forward. The tendency in such cases is for rotation to describe the 45 degrees backwards, which throws it into the hollow of the sacrum. Delivery in this position is both difficult and inevitably productive of severe laceration of the perineum. Fortunately the use of the hand, aided by placing the woman in the knee-chest position, is usually effective in rotating the head through the 135 degrees necessary to bring the occiput under the pubis. Should it fail the forceps becomes an acceptable adjunct. Its intelligent employment will seldom fail to accomplish anterior rotation. To apply the blades in the usual manner, however, with the pelvic curve directed forward and to continue traction until delivery has been accomplished, would be dangerous. In such cases the pelvic curve will be found looking posteriorly when rotation has been effected. Scanzoni's instructions for double application in such cases should be closely followed. Having located the posterior ear in either the right or left lower quadrant, the appropriate blade must first be applied over it. This being held by an assistant the second blade must be applied and manipulated until a good lock is secured. Downward and backward traction is then to be made until

the perineum is reached, when rotary motion is given the forceps to correct the presentation. Rotation having been accomplished and the patient then placed again on her back, the forceps should be taken off and reapplied with the pelvic curve in its proper relations, before resorting to traction.

The other supplementary functions of the forceps need scarcely be dwelt upon. They are to be mentioned chiefly to be condemned. To use the forceps primarily as a compressor is reprehensible practice. The instrument necessarily causes some compression during the process of traction. This is unavoidable, but the deliberate use of the instrument with the object of compression is to be condemned. More forcible language than this is called for in condemnation of the use of the instrument as a dilator. Doubtless lacerations of the cervix are unavoidable in a considerable percentage of cases, but it is none the less true that the use of the forceps is directly responsible for the large majority of cervical lacerations which furnish material for the gynecologist. When the os is undilated or not easily dilatable it should be opened up by manual manipulation after the Harris method, when the use of the forceps may be deemed urgent. To introduce the forceps and drag the foetal head through a rigid os is certainly malpractice.

The application of the forceps is imperative in conditions threatening the life of the mother or the child. On the part of the mother we have eclampsia, heart failure, broken compensation, connected with valvular lesions, oedema of the lungs, hemorrhage from premature separation of the placenta, exhaustion, as indicated by objective rather than subjective symptoms. Lack of expulsive

force furnishes also a prime indication. It is a very good rule to apply the forceps if after the second stage has continued for three hours there has been no progress in the descent of the child's head. This rule applies more particularly to cases of median and low position of the head. Where the head has not descended to mid position it is well to secure its molding by the uterine contractions before applying the tractile force. On the part of the child the indications are prolapsus of the funis, premature separation of the placenta, disturbance in the rhythm of the heart beat and escape of meconium, in vertex cases. The escape of meconium in the latter cases indicates a paralysis of the sphincters and is thus a symptom of graver portent than when occurring in breech presentation. As a general rule the forceps should be applied in the interests of the child when the foetal heart beat falls below 100 or rises above 160 per minute.

The conditions covering the application and the extractive force of the forceps, are: First, correct presentation. We have seen how the instrument is of much value in rotating mal presentations and it should certainly be used for this purpose before being employed as a tractor. Secondly, the os must be dilated or easily dilatable. Thirdly, the membranes must have ruptured. The application of the blades over the unruptured membranes prevents the securing of a firm hold and the forceps will very readily slip. This condition, together with the danger of tearing loose the attachment of the placenta, makes it highly necessary that the waters should have been allowed to escape before the application of the forceps. Fourthly, the head must not be either too large or too small. Here the exercise

of the best judgment of the obstetrician is called into play. After a tentative traction has failed to effect any progress, the forceps should be removed and the condition of the head as to size and as to the capacity of the woman's pelvis are to be carefully considered. Should there appear any marked disproportion, other means than the forceps must be resorted to, to effect delivery. Fifthly, the forceps is contra-indicated in cases of contraction of the pelvis below the size universally conceded as necessary to permit the birth of a normal child.

A word in regard to the time for making traction. It is, I believe, the common practice to make traction immediately on securing a lock of the blades. The temptation to do so is strong and particularly so in the case of the young practitioner. It is not good practice. In a considerable percentage of cases no traction will be found necessary and it should not be applied until the necessity is apparent. The applied blades have an excitant action on the uterine contractions and this is frequently sufficient to effect expulsion without traction. It should be waited for. Traction should not be resorted to in the interval of the pains, but should be employed rather as a supplement to the uterine expulsive effort than to take its place.

It is generally advised by the authorities that the forceps be removed as soon as the head begins to distend the vulva, the reason given being that the added volume of the blades increases the liability of laceration. In my opinion, however, it is better to allow the forceps to remain until delivery is effected. By its aid the progress of the head can be controlled and the tendency to laceration thus lessened. Laceration is frequently directly

due to the violence of the final pain and may be obviated by the prevention of the sudden expulsion, an effective means to which end we have in the forceps.

During a recent conversation a young practitioner stated that he had just completed his first series of 100 cases of labor. He had followed the practice, too much neglected in private work, of recording carefully all details in connection with his cases, noting presentation, duration of the several stages of labor, mode of delivery, size of placenta, length of cord, weight of child, etc. On inquiry he informed me that his record showed but three cases of instrumental delivery. As compared with my experience this struck me as a remarkable showing. On examining my records for the past ten years I find that the percentage of instrumental deliveries is nineteen, and I have always regarded myself as quite conservative in the use of the forceps. The fact that my young friend's practice is in the country

has probably had something to do with his comparatively infrequent use of the forceps. Our farmers' wives are, as a rule, thanks to their more natural modes of life during gestation, better equipped for parturition than are their city sisters. It is my rule to apply the forceps if after the os has been fully dilated for three hours there has been no progress in the head's descent. Doubtless nature would accomplish delivery in a large proportion of such cases, but to wait longer than three hours is to jeopardize the child's life and the integrity of the pelvic floor. Under proper aseptic and antiseptic precautions, with a proper conception of the mechanism of labor and a correct diagnosis of the presentation, the use of the forceps is, moreover, unattended by any additional risk to woman or child. On the contrary, the timely, intelligent use of the forceps is both in the immediate interest of the child and in that of the subsequent condition of the mother.

THE TREATMENT OF CHRONIC CONSTIPATION.

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PHYSIOLOGICAL CONSIDERATIONS.

A very important part of the physiology of the colon is the question of stimuli. What are the factors that induce normal peristalsis? For convenience of study these may be divided into three classes:

1. Those emanating primarily from nerve centers.
2. Chemical irritation of the mucosa.
3. Mechanical disturbance in the bowel.

1. There are some facts that seem to favor the view that intestinal peristalsis is presided over by the nerve centers of the cerebro-spinal and sympathetic systems. Stimulation of the vagus or of the splanchnics induces contractions of some of the muscular fibers of the bowel. It is well known that by certain nervous conditions and impulses peristalsis is induced or retarded. Again, some of the cathartics when introduced hyperdermatically produce the same effect as when

administered by mouth. On the other hand the most convincing evidence supports the prevailing view that normally the stimuli of intestinal peristalsis is the intestinal contents.

2. A great number of clinical observations as well as many experiments have demonstrated beyond any question that chemical irritation in the bowel is a powerful agent to produce peristalsis. This seems to give a reasonable explanation of the action of cathartic remedies and the peculiar laxative effect of certain foods. A crystal of sodium chloride applied to the serous or mucous surface of the intestine is followed by the contraction of the gut near the point of application. Many other substances have a similar action. These experiments serve to illustrate the potency of chemical irritation in causing intestinal peristalsis. When the chloride of sodium is used for this experiment the contraction will be seen to involve from two to six inches of the gut. About a square inch of the serous surface around the crystal of salt blanches and in less than a minute the gut begins to assume a cord-like appearance. The contraction persists from one to ten minutes and in some cases, after a temporary relaxation returns. I have never been able to observe true peristalsis produced in those experiments in which sodium chloride and other chemical irritants were used. On the contrary the contraction resembled an enterospasm. Glycerine in the form of a suppository or enema produces active peristalsis, but the pain and straining seem to indicate that there is a large pathologic element associated with it. It does not serve the purpose here to discuss the way these agents bring about their results. Possibly the hygroscopic action of the glycerine and

salt may be the important factor, and this may act either by causing a sudden change in the blood-pressure in the gut, or by stimulating the nerve endings, a reflex impulse is set in motion culminating in motor stimulations. There may be drawn from these observations these conclusions:

1. Chemical irritations of the serous or mucous surface of the bowel produces effectual peristalsis.

2. In most, probably in all instances, the peristalsis so produced is attended with important abnormal phenomena.

It seems to be accepted by the majority of physiologists and clinicians that the natural stimulus inducing peristalsis in the colon is mechanical, and further that the essential feature of this stimulus is distention. In other words fecal material collects in the colon in sufficient quantity to cause stretching of the bowel wall and as a result peristalsis is produced. Under normal conditions the important feature is the quantity, not the quality, of the colonic contents. If the reverse were true, then a small amount of fecal material would stimulate peristalsis as much as a larger. While it is a common clinical experience to observe a small amount of very irritating material producing violent peristalsis, the process differs essentially from the normal. In health under normal conditions the chemical character of the fecal contents is of no importance, that is, as far as the production of peristalsis is concerned. An inert substance, without chemical affinity for any substance in the intestine is a perfect agent as a stimulus for peristalsis if its consistency is suitable and its quantity sufficient. Many clinical observations strongly favor this view, but in order to gain additional proof I experimented upon dogs

to observe the effects of different agents upon peristalsis. To determine the effect of distention of the colon the dog was anæsthetized with chloroform, and the abdominal viscera well exposed by long longitudinal and transverse incisions. The colon was emersed in normal saline solution at about 100° F. A collapsed thin rubber bag was then inserted through the anus and made to rest in the rectum or colon. This bag had a tube attached for the purpose of inflation. By these means any degree of distention of the rectum or colon can be readily obtained. The presence of the uninflated bag in the bowel produced no contraction. Moderate distention was followed after a length of time, varying in different dogs and in different parts of the bowel, by waves of contraction. Usually the contraction was seen to begin immediately above the bag, but occasionally it was first seen at some distance. As distention was increased the peristaltic contractions followed more rapidly and wave after wave propelled the bag along. These contractions continue even after the distention has ruptured the bowel. In most cases strong contractions of the abdominal muscles accompanied the peristalsis when it had reached a certain strength. These experiments seem to demonstrate that distention of the bowel induces normal effective peristalsis. It has been contended by some physiologists that stretching increases and contraction diminishes the volume of a muscle fiber, and further that this increase and decrease in volume promotes the absorption of nutrition, and the elimination of waste respectively. If this theory is correct it follows that the very agent that calls for muscle work is instrumental in

providing new energy to the muscle cell. The contraction of a muscle causes increased waste of its substance and the diminution of its volume promotes elimination. Metabolism is at its lowest when the muscle is at rest. When the muscle is stretched the increase in volume produces rapid absorption and at the same time stimulates contraction. It will be seen therefore that the nutrition and development of the intestinal musculature depends to a great extent upon the very stimulus that induces its activity. According to Herbert Spencer the evolution of the gastrointestinal muscle is made intelligible only when stretching is recognized as the stimulus of peristalsis.

One of the characteristic features of modern medical progress is the demand for principles fundamental in organic life. A conclusion regarding vital phenomena is more liable to be erroneous when the observation upon which it is based are limited to one species. It is interesting therefore to seek, in the field of biology, evidence bearing on the development of the intestinal muscle and its stimuli. I do not know that a detailed account of the phylogenesis of the gastrointestinal musculature has been worked out, but a study of the literature bearing on the subject confirms the conclusion that stretching is a most important agent in producing normal contractions of the alimentary canal. The following statement from Spencer's *Principles of Biology* seems to have met little or no opposition from subsequent writers: "If we remember that the muscular celloid is made to contract by mechanical disturbance, and that among mechanical disturbance that which will most readily affect it simultaneously through its mass is caused by stretching we shall be considerably

helped toward understanding how the contractile tissues are developed."

1. When a granule of vegetable carmin is ingested by one of the protozoa it is retained in the cell protoplasm for a time and then ejected. There has been no chemical change in the carmin, and in those organisms without a vacuole the carmin acts like a foreign body stimulating by its mere presence the contractile substance of the protoplasm.

2. In other protozoa digestion is effected largely in the contractile vacuole, and it is only after distention of this vesicle has reached a certain degree that contractions begin. These contractions are made evident by the changes of the vesicle, by its propulsion to the outer limits of the cell, and by its subsequent protrusion and rupture.

3. In certain higher forms of animalcule there is a permanent stomach which communicates externally by a permanent canal. The water containing possible nutrient particles is swept into the stomach by cilia until a certain distention has been reached, and then a sudden contraction occurs which empties the stomach through the same canals from which it was filled. Here again, in the absence of any contrary evidence, distention must be recognized as the stimulus causing the contraction.

4. In organisms more highly developed the digestive processes are more elaborate, there are longer intervals between feedings, longer retention of food, and consequently greater distention. Under these circumstances, and synchronously two new structures appear, viz., muscular tissue in the gastrointestinal canal, and a separate anal orifice for the elimination of waste. Vermes are the lowest order in which these anatomical fea-

tures are found. Under the operation of the same factors the more fully developed gastrointestinal musculature of higher organisms was formed.

Physiological researches of the last few years have brought into prominence the chemistry of the gastrointestinal canal. It is well known that the secretive activity of the glands of the alimentary system as well as the processes of digestion depends upon an alternating preponderance of acids and alkalies in the stomach and bowels. Then, it is also known that the growth of bacteria in the intestine is controlled by the chemical nature of its contents. More recently it has been discovered that the action of the pyloric sphincter is regulated by the chemical reaction of the stomach and duodenal contents. While these considerations show the importance of chemistry of the gastrointestinal contents they have no direct bearing upon peristalsis. However, these discoveries have caused the purely mechanical stimuli in the intestine to be, to a great extent, ignored. During the last decade statistics upon the treatment of chronic constipation and other conditions depending upon faulty peristalsis strongly favor mechanical agencies and methods.

This brief account of a portion of the physiology of the intestine is given to suggest a reason for and an explanation of the success of these agencies and methods.

Subjective Ozena.—John Knott (Dublin, Ire.) gives a resumé of the history of this disorder and cites a number of cases which have occurred in his own practice. In none of the cases did there appear to be the slightest trace of any organic lesion, central or peripheral, to account for the peculiar and distressing condition.—*American Medicine*, December 16, 1905.

A FEW RESULTS OF ROENTGEN RAY THERAPY WITH REPORT OF CASES.*

CONRAD GEORGE, JR.,
Ann Arbor.

Our knowledge of the therapeutic uses of the Roentgen rays has been considerably increased during the last few years. Numerous reports of the undoubted value of this form of treatment in certain selected cases continue to appear in medical literature. The remedy, however, has not been found capable of producing all the results that were expected of it at first when the wonderful power of these rays was much overrated and the imagination was easily led to predict results from its use which our experience has since determined to have been impossible. On the other hand, the treatment cannot be discarded because some remarkable results have followed its intelligent application. It gives very positive results in those cases best adapted to this kind of treatment, but its limitations should be well understood.

Numerous diseases for which formerly there was no cure, not even palliative, can now be treated with benefit by the Roentgen rays. Among these might be mentioned lupus vulgaris, epithelioma, rodent ulcer, acne, chronic localized patches of eczema, psoriasis and many other skin diseases. More uniform results have been obtained in the treatment of these diseases with X-rays than with Finsen's light or high frequency currents.

Good results have followed the proper use of X-rays in tubercular glands, before and after operations for carcinoma

and certain cases of inoperable carcinoma. They have more recently been proved to be of value in the treatment of chronic ulcers, sinuses, keloids and leukemia.

It is believed that the treatment with X-rays before operations for malignant growths lessens the vitality of the tumor cells and destroys some of them, thus increasing the prospect of an operative cure. In inoperable malignant growths the Roentgen rays are of doubtful utility except in certain cases where they have proved to be of benefit by relieving pain or actually causing the disappearance of the growth. This treatment seems to have a peculiar selective action in these cases, while in others closely resembling them clinically, it has the opposite effect of stimulating the growth to renewed activity on account of the irritation produced. It may have a destructive action upon the superficial cells of such a tumor, but the deeper cells seem to take on a more rapid growth, shortening the life of the patient very materially and adding to the pain to be endured. I have seen this demonstrated very forcibly in a case of inoperable carcinoma of the breast where the application of the Roentgen rays merely added fuel to the fire and increased the sufferings of the patient considerably, death taking place from a rapid extension of the disease internally.

The mode of action of the X-rays is still a matter of theory and various explanations have been offered. They are believed to have both local and systemic effects. The growth of some cells is inhibited and others stimulated by them,

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and in this way the metabolism of the body cells is altered. The inhibitory action of the Roentgen rays is shown in the treatment of epithelioma, the cells of which undergo fatty degeneration and are absorbed. The same changes can be observed in the superficial portions of some carcinomata. Circulatory changes occur in the skin when frequently exposed to the action of the X-rays. The capillaries become dilated and a congestion of the skin results which is shown clinically by dermatitis.

An example of the irritative effects of the X-rays may be seen in the rough skin and warty growths which have been observed upon the hands of some X-ray operators.

The systemic effects following the use of this agent are believed by Baerman and Linser to be due to the formation of a toxin within the tissues. For this reason the dosage must not be carried to the point of producing a constitutional disturbance, as chills and fever which result from the absorption of these toxins formed by a kind of retrograde metabolism. It is not even necessary to excite a dermatitis in the skin to secure the best results of this treatment as a cure is effected by absorption and not by burning the tissues.

The X-rays may be excited by an induction coil or a static machine. The use of the induction coil appears to give the best average results. There has been considerable difference of opinion among operators as to the proper distance of the tube from the patient or the part exposed and the length of the exposure. This arises from the difficulty experienced in measuring the dosage of X-rays. Attempts have been made lately to determine this dosage at least approxi-

mately so that some standard therapeutic dose may be readily applied. A milliamperemeter can be placed in circuit with the tube to determine the strength of current passing through it. H. C. Snook, of Philadelphia, has invented an apparatus for measuring the volume of current from its induction. The penetrability of the Roentgen rays can also be determined. From these facts one can determine the dosage that was employed to obtain a cure in a special case or series of cases. It would be governed by the same principles as any other therapeutic measure and might have to be altered in special cases. The Roentgen ray light varies inversely as the square of the distance, being more uniform in a given space, the greater the distance from the part exposed. C. L. Leonard, of Philadelphia, uses the following for a standard dose, a ten minutes treatment with the platinum eight inches from the skin, the tube having an equivalent air resistance of two inches and energized by a current of two milliamperes. R. H. Boggs exposes at longer distances because he believes that the light effects will be more uniform. He keeps the tube at sixteen inches for exposures of twenty to forty minutes. Portions of the body which are not diseased should be protected from the action of the X-rays by means of lead foil or other material not penetrated by the rays.

The apparatus which I have employed in private practice for the production of the Roentgen rays consists of an induction coil supplied with a current from fifty volt sixty cycle alternating current mains. The current is seven and fourteen hundredths amperes through the primary of the induction coil measured by an electro-dynamometer. The current

passing through the X-ray tube is approximately a milliampere. The penetration of the X-rays as measured on the Benoist scale is eight millimeters of aluminum. The tube backs up a three-inch spark.

The following cases are of interest because they illustrate some of the results that may be obtained by the use of the Roentgen rays in the treatment of disease.

CASE 1.—Miss G., age 35, single. Referred to me by Dr. C. G. Darling for treatment with X-rays. Diagnosis, lupus vulgaris. Her mother's brother died of consumption at the age of 27. Patient had typhoid fever at the age of 15. She was sick from August until winter. She had measles two months later. After this she could not walk and a swelling appeared on the great toe of the right foot. It was not red or painful and was incised by her physician. A little blood escaped, but no pus. This wound never healed and the disease traveled up the limb, involving the bone. The knee-joint became swollen and stiff. Thirteen years ago an amputation was performed in the middle of the right thigh for tuberculosis of the knee-joint. She has had no recurrence of the disease in that limb.

About twenty years ago a nodule appeared under the chin. This was removed but the wound was very slow in healing. A similar nodule appeared at the bridge of the nose, then one on the cheek in front of the left ear and a similar lesion upon the other cheek. These lesions would ulcerate and become covered with scales. They were treated for years with various lotions and ointments without any benefit.

An examination of the face on May 9, 1903, revealed in a marked degree the de-

structive effects brought about in the tissues by lupus vulgaris. There was an ulcer upon the bridge of the nose which required a constant wet antiseptic dressing to keep it comfortable. The superior and inferior lateral cartilages of the nose were destroyed so that its tip appeared bulbous. The nasal septum was thickened. The lobule of the left ear was destroyed and the remainder of its surface was ulcerated. On the left cheek were two large reddened areas or patches of infiltrated skin covered with scales and their surfaces were constantly moistened by the secretion of a thin fluid. There was a similar lesion on the right cheek. Upon the tragus of the right ear was a small cold abscess and there was a small tubercular ulcer over the right border of the lower jaw. The upper lip was swollen and covered with scales.

Treatment was begun with the Roentgen rays May 9, 1903, by exposing the ulcerated border of the left ear for five minutes at a distance of eight inches. As this was not followed by any ill effects all the lesions were exposed in the same way every other day. After seventy-three such treatments the cheeks ceased to discharge any moisture and the ear healed, but became covered with scales. One hundred and ten more treatments were given with an exposure of ten minutes daily to each lesion when the nose healed for the first time August 9, 1904. Potassium iodide was given internally during this same period. Altogether two hundred and seventeen treatments were given. This patient has remained well for nearly a year. The case illustrates how a chronic disease like lupus vulgaris may be gradually brought under the influence of the X-rays and a cure effected. This method of treatment appears to be

more reliable than any other but requires a great deal of patience to get the best results. If a recurrence takes place the treatment may be again repeated as often as it seems necessary.

CASE 2.—Mrs. H., age 80, married, widow, housework, United States. Diagnosis, epithelioma of hand. Patient says that the ulcer on her hand has been gradually enlarging for about two years. At first there was a small wart on the back of the hand which gradually increased in size and finally broke down, forming an ulcer. This has continued to enlarge until at present, September 29, 1903, it occupies the whole of the back of the hand. Various ointments and solutions have been used to cause it to heal, but these were unsuccessful. The diagnosis, however, is uncertain because the patient refused to allow any portion of the skin to be removed for microscopical examination. After a few exposures to the Roentgen rays a marked diminution in the size of the ulcer could be observed. After forty-five treatments the wound healed with the formation of a smooth scar. It has remained well for nearly two years.

CASE 3.—Mrs. K. A., age 64. Diagnosis, carcinoma of the breast according to the pathologic report made by Dr. Warthin. An operation was performed May 24, 1904, by Dr. Darling. Both pectoral muscles and the enlarged glands in the axilla were removed. One gland was dissected off from the axillary vein.

The wound healed nicely except one small portion in the middle, where a large scab formed and separated, leaving a granulating surface one inch by an inch and a half in area. As this did not heal promptly I began treatment with the X-rays July 30, 1904. The ulcer was dressed with sterile resin cerate ointment,

alternated with sterile zinc oxide ointment. The exposures were made for five minutes at a distance of eight inches. On September 9, 1904, the exposures were lengthened to ten minutes and later to fifteen minutes as the wound was not healing. After forty-three treatments the wound healed. The patient died December 18, 1904, of an acute fever which had continued for nine days, death taking place about two months after the wound was healed. The interval between the healing of the wound and death was too short to consider the carcinoma as cured, but the treatment was of benefit to the patient in causing the wound to heal, thus relieving the mind of the dread of death from cancer.

CONCLUSIONS.

It is important that some method of measuring the volume and penetration of X-rays should be adopted in order that a standard therapeutic dose may be applied. The results of treatment will then be more uniform.

The Roentgen rays are of great value in the treatment of lupus vulgaris, epithelioma and other diseases of the skin. Favorable results may sometimes be obtained in inoperable malignant growths in carefully selected cases. This treatment may also be employed as supplementary to operations for carcinoma.

Make the Record Now.—Physicians are charged with a new duty under an act of the last legislature in regard to filing certificates of births with township, village and city clerks. The act takes effect on January 1, 1906. Under the old law births were enumerated by assessors and supervisors once a year, which proved to be a very imperfect and inaccurate way. When filed promptly within ten days after birth, the returns should be complete and reliable. Blanks and instructions have been mailed to all physicians in the state by the Secretary of State, Lansing, who has charge of this matter.

CLINICAL HYDROTHERAPY.*

TOBIAS SIGEL,
Detroit.

INTRODUCTORY.

I take this opportunity to exhibit some original hydro-therapeutic procedures according to the technique instructed at Vienna and as they are possible in the most humble home. The utensils to accomplish these procedures are found in any household. The intricate nomenclature coined both by empirics and scientists for simple hydriatic measures ought to make these ocular demonstrations welcome. Herr Franz Kornecker, whom I have now the pleasure to introduce to you, will follow the text-book according to which he has received his hydriatic instructions at the Wiener Poli-Klinik, Vienna, Austria. Herr Kornecker is a graduate of the original Winternitz Institution for the Training of Hydriatic Nurses under the supervision of Hofrath, Prof. Wilhelm Winternitz and under the management of Prof. B. Buxbaum, the author of the guide or text-book in use. I have seized the opportunity to demonstrate to you to-night through one of his own graduates the original Winternitz measures in their simplest form and with such apparatus as to make them possible anywhere wherever a medical man steps in. Wherever the accent of the procedure lies and minute attention is to be paid to details will be pointed out to you. May this demonstration give new impetus to the employment of water, the most versatile of all remedial agents, and due recognition to its therapeutic value. Fads

of so-called "Turkish baths" have done much to injure the employment of water, owing to the fact that so many people having taken "cold" through them, and this simply because they were overdone. Through competition among such wash-houses we have a conglomeration of one-half to a dozen treatments, lasting always from one to three hours, and until secondary reaction (inhibitory paralysis) sets in and the patient leaves the house with coryza, headache, and general malaise. This overdosing is principally due to the "Tip-System"—a European curse now in vogue here, and the cupidity of the "Rubbers," through whom the true aim of the bath is often defeated.

Although the number of procedures is seemingly few, the experienced hydriatist can get along with much less. Different authors describe different remedies often, making a distinction without a difference, and ranging with their number of procedures from 19 to over 200.

PRACTICAL DEMONSTRATIONS.

ABLUTIONS: Cooling of head, hand, mitten, towels, clothes, sponge, luffa, with towel bath. (50-60° F.)

SYNONYMS: Sponge bath, wet hand rub, wet mitten friction, Abwaschung, Teilwaschung. Partialwaschung, Schwamm-bad.

DOSAGE: Difference of body heat and temperature and amount of water employed, pressure used during friction, duration of procedure, drying parts or leaving to evaporate, frequency of repetition.

ACTION: Shock, causing improvement

*A paper read before the Wayne County Medical Society Oct. 2d, 1905, with demonstrations by Herr Franz Kornecker (with two assistants).

in circulation throughout the body, by reflex action from the nervous centre. Tonic to the heart by improving peripheral vaso-motor activity, enhancing resiliency, lessening vis a fronte, and increasing vis a tergo (Baruch), p. 98. Reduction of temperature. Anti-febrile by increasing area of evaporation by causing dilatation of superficial bloodvessels. It relieves the spastic condition of the peripheral capillaries that exists in febrile conditions. It increases the capacity of the muscles and reactive capacity of the skin.

INDICATIONS: Anaemic skin, infectious fevers, myxedema, disease due to exposure and the digestive apparatus, employed continuously until feeling of cold sets in. Catarrhal conditions of the nose, throat and bronchi, cardiac and renal dropsy. As a diagnostic means to elicit the patient's reactive capacity, furnishing a clue to plan for subsequent hydriatric treatment. (A diagnostic feeler). Corry—short and quick! Children and weak patients. As a preparatory means to more heroic hydriatric procedures. Where increased blood pressure is desirable. To relieve internal congestions. To exercise the skin and fortify it against the inclemencies of the weather, (taking cold), rheumatic pains of muscles and joints, being analgesic and refrigerant in action: in chronic disease, anemia, chlorosis, phthisis, in typhoid fevers as well as in any other infectious fever, especially among children, where the brand-baths are impossible.

CONTRAINDICATIONS: Furunculosis, dermatitis, cyanosis, coldness of body-surface, in moribund state.

SPECIAL PRECAUTIONS: Guard against retrocession into the brain by cooling the head first. Patient may partake of stimu-

lants. The water may contain salt, vinegar, etc., etc. Tardy reaction denotes impending collapse. Good reaction should be secured in one part before proceeding to another Teilabreibung.

AFFUSIONS: 55-65° F. (13-18° C.)

SYNONYMS: Pail poure, Begiessungen, Uebergiessungen, Guesse (Kneipp) "Knieguss, Rueckenguss, Unterguss, Oberguss, Brause."

DOSAGE: Temperature, impact and quantity of water used. Duration, condition of skin.

ACTION: Same as ablution, only more forcible, causing *gasping* and thereby relieving the pressure on the right side of the heart. Increases metabolism and bodyweight, pulmonary and cutaneous circulation. Reduces the number and deepens the cardiac contractions, thereby increasing blood-pressure, oxygenating the blood and overcoming threatened hypostasis within the lungs, especially in a case of pneumonia.

INDICATIONS: Threatened hypostasis in pneumonia, asphyxia, asthma, unconsciousness, delirium, stupor, adynamia, when superficial blood-vessels react feebly (Cyanosis), hypostatic congestions, when air-vessels are clogged, collapse, threatened heart failure, in scarlatina meningitis, cerebral hyperæmia, insolation, pneumonia cerebialis.

SPECIAL PRECAUTIONS: "Do not allow friends or relatives to witness procedure, but only changes wrought." Baruch, p. 65. Always use friction.

SHEET RUBS: Head cooling, Feuchte Handtuch Abreibung, Lackenband, Abklatschung, Luftband.

SYNONYMS: Wet sheet rubs, wet towel rubs, sheet-baths, drip-sheet, dripping-sheet, damp-sheet rub, wet sheet rubbing, rubbing wet sheet. Kalt Abreibung, Abklatschung, Abreibung, Mantelabreibung, Ganz-Abreibung, Abstreifung.

DOSAGE: Action modified by patient laying in bed or standing in water of various temperatures. Amount of water left in the sheet. Difference of temperature between body and water employed. Coarseness of sheet or towels used. Antipyretic:

- ℞ (1) very wet sheet 60-50° F.
 (2) double sheets;
 (3) repeated sheet wetting;
 (4) prolonged applications;
 (5) dripping sheet 50° F.

Drip sheet slows pulse (20 beats) and energizes the heart and increases respiration (5 breaths.)

ACTION: Same as ablutions and affusions, increased by large area acted upon and amount of friction applied and frequency of repetition. Baruch in his book on Hydrotherapy (p. 107) claims that "by this method two-thirds of the body-blood may find lodgement in the skin." *Deviative* (short and cold), revulsive, *alterative and tonic* (less dry) drip-sheet—more rigorous than wet-sheet, Respiration deepened and increased. Nitrogenous consumption increased from one to thirty-one per cent. Antipyretic, antiphlogistic, refrigerent, rectal temperature falls while axillary elevates.

INDICATIONS: Lowering of temperature, anæmia phthisis, defective hæmatisation, insomnia, cerebral congestion, nephritis (contracted kidney), fever (as a substitute for a full or brand bath). As a substitute for the douche in domestic practice. Melancholia, hypochondriasis, neuralgias, pulmonary and bronchial disease, convalescent state, low blood-pressure, feeble circulation, deep seated hyperæmia, acute and chronic catarrhal conditions, neuritis, myalgia. May be substituted where the brand bath is indicated but not tolerated. "For use at

home!" "Preëminently useful at any place and any condition." Disorders of liver, spleen and viscera.

CONTRAINDICATIONS: Dermatitis and painful eruptions upon the skin, hyperæsthesia and feeble reactive capacity. When secondary reaction sets in; goose skin, shivering and blueness of the skin.

SPECIAL PRECAUTIONS: Patient must be rubbed or spatted until skin is warm. Patient should rest after procedure.

PACKS: Feuchte Einpackung, Trokene Einpackung, Mod. Einpackung.—Hot blanket pack.

SYNONYMS: Packs, full packs, tonic, revulsive, hot and cold. Ganzpackungen, modifizierte, Erregende eder und Schwitzpackungen.

DOSAGE: Temperature of sheet, nature and thickness of material used as a covering, duration of pack, amount of body surface covered, amount of water left in the sheet.

ACTION: Contraction followed by dilation of the cutaneous blood-vessel. Elimination of toxine. Excitation of the cardiac and respiratory centres. Tonic effect upon muscles. Reduction of temperature. Tonic action on kidneys, by encouraging diaphoresis. Renders skin succulent, soft and pliable. Relieves gastro-intestinal hyperæmia and cerebral congestions.

INDICATIONS: Acute and chronic rheumatism, auto-intoxication, insomnia, anæmia, chlorosis, nephritis (no diuretics needed). In private practice as a substitute for the hot air bath, rheumatic gout, albuminuria, eclampsia, diabetes, indigestion, chronic mental disorders, paresis, acute mania, tachycardia, palpitation morbus Basedewii, syphilis, typhoid fever, sciatica.

CONTRAINDICATIONS: Extreme weakness.

SPECIAL PRECAUTIONS: Complete exclusion of air from beneath the blanket covering. The reactive capacity of the patient must first be known. These procedures may be followed by an alcohol rub, douche.

COOLING APPLICATIONS.

DOSAGE: Cooling coil, wet compress, (turban) icebag, precordial compress, alternate compresses, heating compresses (Cataplasms) or fomentations.

ACTION: Relieving congestion, improving circulation, innervation, raising blood-pressure, cardiac stimulant.

INDICATIONS: Local congestions, valvular lesions, degenerative conditions of the heart.

SPECIAL PRECAUTIONS: Thin evaporating cloth compresses and cooling coils are preferable to ice-bags.

SHALLOW BATH.

SYNONYM: Half bath. Halbbad, Halbbad mit Uebergießungen.

DOSAGE: Temperature of water in tub and temperature of water used for pour, height of pail-pour, number of pourings, amount of friction made. The gradual lowering of temperature of the water in the tub.

ACTION: Stimulating the peripheral blood-vessels, refreshing by stimulating the heart, the motion of the stomach and intestinal secretion. Relieves paretic conditions of superficial blood-vessels in toxæmia. Carminative and sedative.

INDICATIONS: Fever, functional nervous diseases, tabes dorsalis, myelitis, digestive disturbances, neurasthenia, anæmia.

CONTRAINDICATIONS: Subnormal temperature, intestinal hemorrhage, hæmoptysis.

SPECIAL PRECAUTIONS: Bath-tub should be spacious. The slower the heat is abstracted, the more enduring will be the reduction of body temperature.

SITZ BATH: Hip bath, 55-65° F. (18-15° C.)

SYNONYMS: Sitbad, Hueftbad.

DOSAGE: Temperature of water and duration.

ACTION: Arresting or increasing peristalsis, increasing and diminishing circulation within the pelvic organs.

INDICATIONS: Diarrhœa, constipation, diseases of the genital organs, impotency, spermatorrhœa, amenorrhœa, passive amenorrhagia, subacute and chronic ovaritis, profuse menstruation after failure of curretment. Vessical tenesmus, agrypnia (before bedtime), acute and chronic intestinal catarrh, lessening intestinal secretion, acute and chronic gastric catarrh.

CONTRAINDICATIONS: Sexual irritability, active menorrhagia, uterine colic, cystitis.

SPECIAL PRECAUTIONS: The feet of the patient should be in the footbath 104 to 105° F. Exercise after cold, except when taken for insomnia. Rest in bed after warm sitz-bath. Patient's head to be kept cool. Warm Sitz baths dislodge impacted feces, are culminative. 100-110° F. (34-42° C.), 6-60 minutes.

FOOT-BATHS: 55 F. or 13 C. (cold). (10° C.) short.

SYNONYMS: Fussbaeder, Fliessende Fussbaeder.

DOSAGE: Height and temperature of water, friction used. Best by the patient himself. Head cooling, duration (usually short).

ACTION: Short contraction of peripheral vessels, followed by tonic dila-

tions. Derivative to head, cerebral hyperæmia.

INDICATIONS: Cerebral congestions, migraine (caused by congestion to brain), constipation (Peristalsis being reflexly encouraged), Plethora abdominalis, cold feet, insomnia, some forms of constipation (reflex).

CONTRAINDICATIONS: Catarrh of air passages, bladder, gravidity, hysterical patients.

FOOT-BATH HOT: 115 F. or 46 C., $\frac{1}{2}$ hour.

DOSAGE: Temperature and duration.

ACTION: Primary peripheral hyperæmia.

INDICATION: Asthma, retarded menstruation.

SPECIAL PRECAUTIONS: Patient should be active with his feet while taking the bath.

RUNNING FOOT-BATH: Walking in wet, cold grass, snow, and brooks are fads that would vanish at the tribunal of science—the Wayne County Medical Society. Some medicated baths and fango-packs, that are described in Buxbaum's text book, cannot be exhibited here, but to complete hydrotherapy at the bed-side, the following procedures must be added.

HOT AIR BATH: With or without precordial compress.

SYNONYMS: "Phénix alair chaud," Irish or Irish-Roman, or Turkish bath in bed. Heissluftbad im Bett. Quincke's Form. Matthes S. 163.

DOSAGE: Temperature 110° to 160° F. Etheral or alcohol rubs before bath increase its efficacy. Duration 15 to 30 minutes, 2 to 3 a week.

ACTION: Diaphoretic, increased oxygenation, and elimination of CO₂, burning up of fatty tissue, increasing metabolism, diminishing leucocytosis, increasing

pulse and respiration, diminishing arterial tension, restricting heat diffusion, enfeebling heart and may cause faintness, owing to sudden dispersion of blood into the cutaneous tissues.

INDICATIONS: Obesity, gout, rheumatism, arthritis, myalgia, neuralgia, lumbago, ascites, mercurialism, ischias.

CONTRAINDICATIONS: Atheroma, cardiac lesions.

SPECIAL PRECAUTION: Breathing fresh dry air during procedure to increase the amount of oxygenation is paramount. Pulse and temperature should be watched. The inhalations of the exhalations of other patients in the rarified air of the usual hot room is dangerous.

ELECTRIC LIGHT BATH: Electric lights are attached to hoops which cover the patient (a procedure introduced first by Dr. J. H. Kellogg, of Battle Creek, in 1893).

SYNONYMS: Radiant light baths. Strahlende Lichtbaeder.

DOSAGE: Same as hot air bath—acting especially on the sudoriferous glands and induce sweating at temperature of 75° F. within 3-5 minutes. Less heat needed to make patient sweat.

ACTION: Same as hot air bath. Not sufficiently demonstrated to deduct any special action except that of furnishing heat (Mermagen, p. 104).

INDICATION: Same as hot air.

CONTRAINDICATIONS: Same as hot air.

SPECIAL PRECAUTIONS: Same as hot air.

STEAM BATH.

SYNONYMS: Russian bath. Russisches bad. Dampfbad.

DOSAGE: Temperature and duration 110° to 140° F., 10 minutes up to 1 hour, 2 to 3 times a week.

ACTION: Accelerates heart's action, increases body-temperature by preventing radiation, dilation of peripheral blood-

vessels, increases perspiration by rendering the skin succulent, the contents of the sebaceous glands soft and eliminative and opens the orifices of the sweat glands. Increasing elimination in general toxins and reduces, when prolonged, body weight by destruction of albumen. Increases metabolism.

INDICATIONS: Diseases due to insufficient oxydation, providing the patient is given cool and fresh dry air from outside while in the steam. Obesity, rheumatism, gout, ascites, Bright's diseases (nephritis), breaking up of a cold. Prophylactic against acne, furunculosis, psoriasis diseases of the lymphatic system, tertiary syphilis, preparatory to mercurial annunciations, arthritis deformans, general exudations, elimination of infectious germs.

SPECIAL PRECAUTIONS: The breathing of dry fresh air is paramount. Patient should not breathe in any steam, on account of its interfering with the interchange of gases within the lungs, and apt to give rise to pulmonic congestions, interfering with circulation, causing headache and vertigo. Precordial compress or ice bag over the heart may become necessary—atheroma valvular lesion.

THE BRAND FRICTION FULL BATH.

SYNONYMS: Cold friction full bath.

DOSAGE: Temperature of water, amount of friction, duration, frequency of repetition, kinds of stimulants given, 70° to 65° F., 10 to 15 min.

ACTION: Arousing the general nervous system, by cold shock reactive, dilation of the superficial blood-vessels, cooling of the blood, elimination of toxins, relieving spastic conditions of peripheral blood-vessels, diminishing frequency of heart beats and thereby giving the heart rest by prolonging intervals between contrac-

tions, relieving kidneys and lungs by increasing oxidation, breaking up of effete matter and rendering it eliminative, increasing the amount of blood corpuscles, especially the leucocytes, rendering the blood alkaline and a solvent for acid deposits, increasing vital resistance and muscular excitability, activity of liver, kidneys and skin, increases the nutrition of the heart muscle itself and the circulation in general. Ameliorates sufferings of patient, shortening the duration of typhoid fever, lessening complications.

INDICATIONS: Typhoid fever, scarlatina, pneumonia.

CONTRAINDICATIONS: Subnormal temperature with cyanosis, intestinal perforation, peritonitis, pleurisy, extensive bed sores, reactive inability (moribund state), threatened hemorrhage, syncope.

SPECIAL PRECAUTIONS: Friction is paramount, causing reactive dilation of skin, preventing shivering, assisting the heart, preventing internal congestion, encourage reaction by placing patient in warm bed, after bath.

EFFERVESCENT BATHS: Carbondioxide, Nauheim, Drs. Aug. and Theo. Schott.

DOSAGE: Temperature of water, amount of ingredients, duration, size of gas bubbles and repetition, 80° to 95° F.

ACTION: Elevation of blood-pressure, revulsive, derivative, relieves heart, kidneys, stimulates nonstriated muscular fibres (involuntary variety), giving a direct stimulus to the heart, contracting a dilated heart three-quarters of an inch during one treatment (Baruch), reducing temperature and fever, lower temperatures being tolerated on account of the carbon dioxide acting on the "hot spots," increasing blood-pressure and thereby urinary secretion, producing peripheral

hyperaemia by friction, ebullition of the gas bubbles, establishes true compensatory hypertrophy by rendering the systole more vigorous.

INDICATIONS: Valvular lesions, dilation and disturbed compensation of heart. Rheumatism, spinal irritation, neuritis, muscular weakness, sexual neurasthenia, circulatory disturbances, nephritis, heart failure in pneumonia.

CONTRA: Extreme compensatory disturbance, tendency to emholism, infraction of the lungs, apoplexy, angina pectoris, aortic aneurism.

SPECIAL PRECAUTIONS: Patient should be protected from inhaling the gas, as it interferes with respiration, doors and windows should be open during administration of bath. The baths must be graduated according to the subjective feeling of the patient after his first bath, which should be a very mild one. If patient feels refreshed after his first bath, the carbonic acid may be increased and the temperature in the succeeding baths gradually lowered. This bath should only be administered by experienced nurses.

EFFERVESCENT BATH: Oxygen. (The speaker's attention to these kinds of baths as a better substitute for CO₂ baths was first called by an article of Dr. Saarhsohn, of Meran, Austria, in the *Blätter für Klinische Hydrotherapie*, February, 1905.)

SYNONYMS: Brausende oder moussierende Sauerstoffbaeder.

DOSAGE: Temperature of water, amount of ingredients used.

Following statements are hypothetical on account of lack of sufficient clinical experience:

ACTION: Oxydation, disinfection, revivifying, antiseptic, stimulant to the respiratory mucous membrane, heart and

respiration. The peripheral stimulation by the air brush formed by the ebullition of fine vesicles (be 3 to 5 times smaller than those of carbon dioxide) causing peripheral hyperaemia and giving a velvety feeling to the skin and voluptuous sensations. The bath may be changed to a carbonic acid bath by adding to it bicarbonate of soda. This bath is superior to the carbon dioxide bath on account of the gas it liberates being wholesome, instead of harmful, the inhalation of which being indicated in almost all diseases known. No inhalation of obnoxious gases, no impervious sheeting needed to guard against inhalation.

INDICATIONS: In all disease due to deficient oxydation as obesity, gout, diabetes, rheumatism.

ANTISEPTIC: Conjunctivitis purulenta, blepharitis marginal, scabies, ozena, bronchitis, hay fever, pneumonia, typhoid fever, whooping cough, scarlatina, influenza, tuberculosis.

ALTERATIVE: Syphilis, scrofula, anaemia, chlorosis, asthma, resuscitation.

COUNTERINDICATIONS. None.

MASSAGE: Mechanical; vibratory by machines; canon-ball rolling on the abdomen and manual by skilled masseurs.

INDICATIONS: Painful acute and chronic swellings, hyperplasia, exudations, deposits, goitre, paralysis, constipation, when due to lack of peristalsis. May precede or follow all procedures.

Has the Baby Been Registered?—Parents of children born in Michigan after January 1, 1906, will be interested to know that under a new law it is the duty of the physician or midwife to file a correct certificate of birth with the township, village or city clerk or with the city health officer in certain cities within ten days after the date of birth. An accurate record is thus assured which may be very valuable in after years for legal purposes. Parents should see that the births of their children have been duly recorded.

ANALYSIS OF 105 CONSECUTIVE CASES OF TYPHOID FEVER IN
REFERENCE TO THEIR DIAGNOSIS AND TREATMENT WITH
SPECIAL MENTION OF INTERESTING CASES.*

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During the summer and fall of 1903 there were 105 cases of typhoid fever admitted to the third medical service of the Boston City Hospital. They represented the average type of this disease occurring in a charity hospital. The majority were of the day laboring class; about two-thirds were of foreign extraction, one-half of these were Irish; the usual age variation occurred; the large majority were between twenty and thirty years. In over three-fourths of the cases the diagnosis was evident upon admission to the hospital, only five cases gave any difficulty in diagnosis; there were no rare complications and only the usual variety and number of common ones; there were no special methods of treatment instituted; the mortality was not remarkable.

The object of this paper, then, is not to record new and rare complications; the series is too small to add much of value to statistics or to present special methods of treatment; but rather to emphasize some of the well-known points along the line of diagnosis and treatment which were impressed upon me in the study of this disease.

I am indebted to Drs. G. B. Shattuck, J. L. Morse, and J. W. Bartol of Boston, for the privilege of using these cases. They occurred during my service as house physician.

Diagnosis—In eighty out of the 105

cases the diagnosis had already been made by the outside physician or was evident upon admission to the hospital. Eleven of remaining cases admitted with the diagnosis of typhoid fever (?) were positive on further observation. The other fourteen cases were admitted with a diagnosis of some other condition; nine of these were readily identified as typhoid fever, four caused some difficulty, and in one case the diagnosis was not made until autopsy.

During the period these cases were under observation five admitted with a diagnosis of typhoid fever were found to have some other disease; one was a case of appendicitis, one acute miliary tuberculosis, one pyemia, and two had malaria.

The number of certain and uncertain cases is what ought to be expected when we consider that eighty-three of the cases did not come under observation until some time during the second week of the disease or later. The majority at this time gave an almost typical history of gradual onset with malaise for one or two weeks followed by more definite symptoms of fever, chills, or chilly sensations, headache, nausea, vomiting, cough, diarrhoea, or constipation, and general soreness. The apathy, flushed cheeks, coated tongue, palpable spleen, and roseola present in most cases, made the picture complete and unmistakable.

The following brief analysis of symptoms occurring before or at the time of admission shows their frequency. Seventy-eight cases complained of head-

*Read by title before the Michigan State Medical Society at its annual meeting at Pe-Toskey, June, 1905, and in full before the Wayne Co. Medical Society, Oct. 9, 1905.

ache which was usually localized in the frontal region and (was frequently) described as shooting over the head and down the neck. Sixty cases mentioned chills varying in intensity from severe rigor to slightly chilly sensations accompanying the fever, the latter condition was the usual one. Epistaxis only occurred in ten instances: Nausea and vomiting were mentioned as initial symptoms in sixty-two cases. Fifty-three complained of frequent loose movements, but the majority of these followed the taking of carthartics for constipation; twenty-seven complained of constipation and the remaining twenty-five had noted nothing abnormal about the bowels; forty-one cases mentioned dry hacking cough; forty-three complained of rather severe abdominal pain, general soreness was almost a universal symptom mentioned in ninety-seven cases.

On the first examination, characteristic rose-spots were observed in sixty-one cases, the roseola was unusually profuse throughout the series; the spleen was felt in fifty-four cases at this time and the pulse was relatively slow in comparison to the temperature in eighty-seven instances.

The eleven cases admitted with a diagnosis of typhoid fever (?) gave no difficulty. One case later perfectly typical was doubtful because the illness had lasted only four days; seven were made doubtful by insufficient signs and symptoms. They were all early cases. In three instances the chest symptoms (initial bronchitis) were unusually prominent. In all but the first case in this group the Widal reaction was positive the day following admission. Eighty-nine cases in the whole series gave a positive Widal reaction in a dilution of 1-80

within twenty-four to thirty-six hours after admission. Every case except two eventually gave a positive Widal reaction. Some of the cases that were doubtful at first were tried with para-typhoid cultures giving nothing but negative results. One of the cases to be mentioned later, passed through the course of typhoid fever, had a relapse and phlebitis but repeated Widal and para-typhoid tests were negative. The other case, as will be seen, died on the fourth day. The typhoid fever was proven by autopsy.

Of the fourteen cases admitted with a diagnosis of some other condition than typhoid fever, the nine readily identified were entered with the following diagnosis: Malaria, 2; pneumonia, 2; pleurisy, acute parenchymatous nephritis, alcoholism, hysteria and scarlatina, each 1.

MALARIA.—The two cases diagnosed malaria gave a history of sudden onset, with chills and fever, apathy and enlarged spleen completing the picture. Patients coming to the hospital with this story in Boston, where malaria is not unusual, makes this error as well as the reverse, that of calling malaria typhoid fever, a frequent one. The blood examinations soon correct the mistake.

PNEUMONIA.—The initial bronchitis was frequently severe enough to make the chest symptoms unduly prominent. That is what happened in one of the two cases diagnosed pneumonia; in another case there was a complicating pneumonia which at first obscured the typhoid condition. The leucocyte count, as well as the Widal test helped in all of these cases.

PLEURISY.—The case diagnosed pleurisy had purulent bronchitis with typhoid fever. The only reason for this diagnosis was a wrong interpretation of the physical signs which were distinctly those of bron-

chitis. Here again the blood examinations were of the first importance in making the diagnosis.

The leucocyte count, a part of the routine examination, proved to be of considerable value. Fifty-one per cent. of the cases gave a hypoleucocytosis. In 36 per cent. of the leucocyte count at the time of admission was between seven and ten thousand and in 13 per cent. the count was over ten thousand. This latter group represented severe cases with complications. It might be mentioned that not all of the complicated cases had a leucocytosis.

NEPHRITIS.—In rare instances typhoid fever has been mistaken for acute parenchymatous nephritis. No. 53 was such a case—A. S., male, aged 53 years. A widower of German nationality; a long-shoreman of alcoholic habit, gave a history of illness for ten days. He complained of headache, general abdominal discomfort, anorexia with nausea after eating, but no vomiting. He had the general appearance of overwork and dissipation. On admission his temperature was 100° and pulse 86; his tongue was swollen, heavily coated and tremulous. There were a few squeaky râles throughout both lungs, with rather harsh breathing; the radial arteries were considerably thickened; his heart was not enlarged; its action was regular, there was a soft systolic murmur at the base transmitted upwards, the aortic second sound was the louder; the abdomen was slightly distended, there was no tenderness; the sharp liver edge was felt 2 c. m. below the costal margin; the spleen was not felt; there were no rose-spots; the knee jerks were equally diminished; there was questionable edema about the ankles. The urine was slightly turbid, yellow,

acid, with a sp. g. 1016, a trace of albumen and no sugar. The sediment was considerable and showed many hyaline and granular casts, a few leucocytes and squamous cells and rare blood corpuscles. The patient passed through a severe and prolonged course of typhoid fever. The urine entirely cleared up during convalescence.

It is of interest to note in this series of cases that there were no serious renal complications, with possibly one exception. Albuminuria was noted in sixty-eight cases. In twenty-seven of these there was a large trace of albumen with casts, blood corpuscles and epithelial cells. One fatal case may have had acute nephritis combined with other fatal complications.

ALCOHOLISM.—The majority of the series gave a history of habitual use of alcohol. Case 83, J. T., aged 34 years, single, Irish, carpenter, admitted with a diagnosis of alcoholism was an extreme instance of this sort. He said he had taken from ten to fifteen whiskies daily for the past four and one-half years, and was drunk at least twice a week. During the past four weeks he had taken fifteen to eighteen whiskies daily. He had been having attacks of vomiting before breakfast, accompanied by belching of gas and twitching of muscles. There had been almost constant dull epigastric pain. The bowels had been constipated, with no movement for four days. Seven days previous to admission he had given up work because of general weakness. Observation and a positive Widal reaction corrected this mistake in diagnosis. The fever was prolonged with exaggerated nervous symptoms usual in alcoholic cases.

HYSTERIA.—Case 102 came in with a

diagnosis of hysteria because of the following history: M. K., female, aged 35 years, single, Irish domestic, said she had had four attacks of paralysis which came on suddenly and apparently without cause. The first attack occurred two years ago. She was confined in bed two weeks with loss of power in the right arm and left leg. There was no loss of consciousness and her general condition was good at the time. She has been "run down" for the past five months and has had to give up work several times on account of general weakness and pain in the right side. For two weeks past she had had attacks of nausea in the morning and on two occasions has vomited food. For the past week she has had a dry hacking cough and felt generally "miserable." Typhoid fever was evident on further examination.

SCARLET FEVER.—Case 30, G. W., aged 16 years, single, female. On admission had a bright erythema about the neck and upper extremities. Her cheeks were flushed and tongue was coated and had prominent papillae, making the case sufficiently suggestive of scarlatina to require isolation for further developments. The erythema extended over the entire cutaneous surface and disappeared the day following admission. There was noticeable desquamation later in the course of the disease. Desquamation was especially mentioned in eleven cases of the series.

The four cases requiring extended observation before a diagnosis could be made were entered with the following diagnoses: Metrorrhagia, typhoid or malaria (?), malignant of liver or stomach (?), and floating kidney.

METRRORRHAGIA.—Case 21, M. M.,

aged 23 years, single, Irish domestic. Was admitted to the gynaecological service with the above diagnosis. She gave a history of malaise for two weeks with cramping abdominal pains and excessive menstrual flow as the chief symptoms. If this case had not gotten into the hands of a specialist it is probable that the diagnosis would have been made earlier. The signs and symptoms were typical although obscured by the excessive menstrual flow.

Case 22. Admitted with a diagnosis of typhoid or malaria (?), presents some interesting features. W. G., aged 24 years, single, seaman, gave a history of mild typhoid fever with slow convalescence. At the time of admission there was no roseola or palpable spleen; slight irregular temperature and an absent Widal reaction. He complained of indefinite abdominal pains and tenderness, especially in the left lower quadrant. The pains were so numerous without evident cause on examination that he was suspected of shamming and discharge from the hospital considered. Two days later there was a sudden rise in temperature with swelling and tenderness of the left leg. The pain was most marked over the course of the femoral vein near Poupart's ligament, where there was local redness and tenderness. This complication seemed to favor the diagnosis of typhoid fever, but at no time were the Widal or Agglutination tests with paratyphoid cultures found positive.

Case 50. Entered with a diagnosis of malignant of liver or stomach (?). I. H. P., aged 56 years, single, born in New Brunswick, storekeeper, dates the beginning of his present illness back three months. He says that the onset has been gradual with occasional attacks of anorexia and nausea at the sight of food. He

frequently could hear a "swash" in his stomach, and usually there was a sensation of a lump in his throat after eating. He had vomited shortly after eating on several occasions during the past week. The vomitus consisted of food only, and had a sour taste. He knows he has lost considerable weight, but cannot say how much. He has been unable to work for the past twelve days on account of weakness. A test meal given in the out-patient department the day before admission showed a very low free HCL and diminished peptic digestion. It was because of these findings, the indefinite history of loss in weight, stomach symptoms and lack of other symptoms that the diagnosis of malignant disease was made. Typhoid fever did not suggest itself until the fourth day after the patient had been under observation. The temperature chart showed fever ranging from normal to 101° , with a pulse rate below 80. There were no gastric symptoms following rest in bed and liquid diet. The Widal reaction was positive in dilution of 1-80 and the leucocyte count was 4,400. This case and the following are instances where in mild typhoid fever the gastric symptoms have taken undue prominence.

Case 87. E. C., aged 53 years, single, house-keeper, was admitted with a diagnosis of "floating kidney." She said her mother's death resulted from cancer of the stomach. She had always been nervous and had "stomach trouble." Her present illness began three weeks ago with chills and fever. Since then she has been very tired and weak, although not confined to her bed. For the past few days her bowels have been loose, averaging four or five movements daily. For two days she has had epigastric pain and distress and slight hacking cough. Follow-

ing entrance the temperature continued irregular, once reaching 101° , but most of the time it was about normal. The abdomen was lax and not distended. There was slight tenderness on deep palpitation in the right upper quadrant. The right kidney was easily felt but could not account for the patient's symptoms. A test breakfast showed nothing of importance. The urine was clear and acid with sp. g. of 1017. There was slightest possible trace of albumen; sugar and diazo were both absent. The leucocyte count was 9,600. Finally, on the thirteenth day, typhoid suggested itself as a possibility and a Widal test in dilution of 1-80 was found present.

Case 29. Typhoid fever not diagnosed until autopsy. Admitting diagnosis August 10th was epilepsy, cerebral embolism (?). O. T., female, white, aged 17 years, single, was born in Springfield, Mo. Her family history was not important. She gave a previous history of poor health. She had scarlet fever when five years old which was complicated by a suppurating left ear. When 13 years old she began to have mild epileptic seizures, at first about once in every two or three months. During the past year almost every month. Recent attacks have begun with twisting of the head and body to the left. She then gives a cry and falls unconscious to the floor. Sometimes there is frothing at the mouth and the tongue is injured. Consciousness usually returns in three or four minutes, but she remains stupid and tired for the rest of the day. One month ago there was a recurrence of the discharge from the left ear. She has never menstruated.

Present illness of very sudden onset. Three days ago she awoke in the morning with a severe frontal headache and

fever. She vomited after eating and complained of dizziness and weakness when she attempted to walk. She remarked that the left side felt weaker than the right. On the day following the family physician was called. At this time the temperature was 103° and the pulse 138, and respiration 28. The patient was delirious and very weak. She had a slight suppressed cough with no expectoration. Her bowels had been regular and urine passed freely. On admission to the hospital, later in the day, she was in a state of muttering delirium, cyanotic, with a temperature of 104° , respiration 65, pulse barely felt, very poor volume, and tension over 140. There was no general glandular enlargement. There was ptosis of the left eyelid, with a suggestion of paralysis of the left side of the face. The pupils were equal, and reacted to light and accommodation. Her tongue had a dirty brown dry coat and was protruded in the median line. Her neck was apparently tender and held retracted. Examination of the chest showed diminished resonance in both bases with few fine rales and faint respirations. The heart action was rapid and regular. The abdomen was slightly distended, tympanitic, and generally tender. There were no masses felt and no rose spots. The spleen could not be felt. The liver dullness extended from the sixth rib to the costal margin, edge not felt. The knee jerks were lively and equal. There was an ankle clonus on the left. The plantar reflexes were normal. Sensation to pain was exaggerated. The urine was clear, acid in reaction, had a sp. g. of 1020. There was a trace of albumen, sugar was absent and the diazo-reaction was negative. The sediment was small in amount, consisting of few hyaline casts, small round cells, an occasional

leucocyte and squamous cells. No blood. The leucocyte count was 6,200.

August 11th, the fourth day, the patient had continued in an unconscious condition with elevated temperature, rapid, weak pulse, and rapid respirations. There was slight suppressed cough without expectoration, a profuse sero-purulent discharge from the left ear. There was no swelling or tenderness over the mastoid. The pupils were equally contracted and reacted to light, and the eyes were kept closed apparently because of photophobia. There were numerous fine crackles with dullness and faint breathing in the right lower back. The abdomen was lax; the knee jerks were diminished, there was no Kernig's or Babinski's sign. The ankle clonus persisted on the left. There was no vomiting, nourishment was refused. Rectal feeding instituted, nutrients were well retained. In spite of treatment patient failed rapidly and died, becoming very cyanotic towards the last. This case was under our observation less than 24 hours. Typhoid fever was at no time considered, because of the short course and intensity of the toxæmia. Septic pneumonia with the consolidation deep-seated and cerebral abscess were suggested and in reviewing the case either diagnosis seemed more likely than typhoid fever. The autopsy, however, showed a typical picture of typhoid fever, and a right occipital microgyria which probably accounted for the epileptic attack and indefinite localizing symptoms, causing us to suspect cerebral abscess. The lungs showed only moderate hypostatic congestion. The chronic left-sided suppurative otitis had not extended. The Widal test made at autopsy, as would be expected, was negative, while the blood cultures contained the typhoid

bacillus. The case is unusual in being one of malignant typhoid.

It is only fair to state in this connection that the most of these diagnoses were "snapped," given before admitting the patient to the hospital. Such diagnoses as malaria, alcoholism and hysteria were of this class and resulted from giving too much importance to the history. These mistakes are usually not as serious or difficult of correction as where certain symptoms are unduly prominent. The ones that occurred in order of their frequency were pulmonary, gastric and renal. The undiagnosed case was the only one in the series in which the cerebral symptoms were unduly prominent at the time the diagnosis was in doubt. Later I found pronounced cerebral symptoms most confusing in children.

The latter case illustrates well the possibilities as well as the limitations of laboratory diagnoses. The question comes to our minds as to whether a blood culture taken before death might not have given us our diagnoses in this case. We cannot say, but if the general accepted view is true that typhoid fever is primarily a general infection, then on theoretical grounds at least blood cultures ought to be our earliest and surest method of diagnosis. Blood cultures taken in several instances were only of negative value, as the cultures were either sterile or showed contamination with skin cocci. Such a method of diagnosis requires experience and equipment only found in the best laboratories and so is limited in usefulness to scientific research. The Widal test proved of more practical value, but here again laboratory facilities and experience are necessary to properly perform the test. Within the last few years a modification of the Widal test has been introduced

which has proved a useful test for the general practitioner without the laboratory facilities. It is the macroscopic application of the serum reaction to an emulsion of dead typhoid bacilli, called by the Germans Ficker's test. Like all new things in medicine, this test has its ardent advocates and critics. It is probable that the reaction is not quite as sensitive as a serum reaction, with a fresh living culture, but it has the advantages of nominal cost, that a microscope and fresh typhoid culture is not necessary, and that, for the inexperienced observer at least, there is less difficulty in distinguishing between a positive and negative reaction.

Parke, Davis & Co. have put upon the market a simple and convenient outfit for performing this test, which they call the Typhoid Agglutonometer.

A review of all the cases from a diagnostic point of view shows that the large majority were undoubted on the first examination when seen for the first time during the second week of the disease or later. During the first week a diagnosis was questionable and extended observation was usually necessary. Too much importance given to the history and individual symptoms were the commonest errors. There were no pathognomic signs or symptoms discovered. The diagnosis depended upon a general consideration of each individual case. The clinical points that appeared of most value were the characteristic elevated temperature with relatively slow pulse, the roseolar and enlarged spleen. When these signs and symptoms were absent or atypical, it was necessary to resort to certain laboratory methods of diagnosis, of these the hypoleucocytosis and Widal reaction were of the most practical value. In

cases which were entirely atypical, relapses and complications were helpful in making the diagnosis probable. It is well to remember that typhoid fever may occasionally occur as an acute malignant disease.

TREATMENT.—It is not my intention to attempt anything like a full description of treatment but rather to consider some of the points which were impressed upon me, especially in regard to the diet, hydrotherapy and general care and nursing of typhoid fever patients.

In thirty-nine cases in the series rest in bed, modified diet and nursing was all that was necessary; in the remaining sixty-six cases complications or exaggerated symptoms required more attention.

REST.—The importance of rest cannot be too frequently impressed upon both the patient and the nurse. I have found it a good plan, using proper caution and discrimination, to tell typhoid patients at the beginning that they are to have a long and rather serious illness; that it will be much to their advantage, perhaps shorten their illness, certainly lessen the dangers of complications, if they will relax mentally and physically; in other words, become infants once more and let the nurse and doctors do everything for them. It is well to think of them as such in treating the case.

DIET.—In the hospital where a large number of patients are fed, simplicity is necessary; however, practical efficiency need in no way be enhanced. Milk diluted with lime-water, beef tea and chicken broth is all that was usually given during the height of the disease at the Boston City Hospital.

Six to eight ounces of milk, besides broth, was the allowance every two to four hours during the day, and every

four hours during the night. It is as necessary to be sure that the patient gets sufficient food as to know that the character of the food and manner of giving are correct. The effect of insufficient nourishment is quickly shown by a loss of flesh and strength and an increase of nervous symptoms. In such cases convalescence is delayed and complications are more likely. The above fact was strikingly illustrated in my experience by a change in head nurses, the regular medical nurse was transferred to another ward and a nurse who had been caring for surgical cases was put in her place. The whole state of the ward was immediately changed, because the orderly routine so necessary was not appreciated. I found that the patients were not receiving the necessary amount of food and drink; as result there was a noticeable increase in nervous symptoms and fever, especially shown by the restlessness at night and an increase in the number of baths required. Fortunately the majority of typhoid patients take their nourishment well, even during the depressed mental state at the height of the fever. If this is not the case the food should be forced, and except in special instances, in my opinion, patients should be regularly aroused for nourishment. I do not believe in "therapeutic fasting" in reference to diet. There is some danger of over-feeding, however, so that the stools should be watched and milk modified to suit the digestion of the patient given.

In instances where the food has been poorly taken certain additions to the milk are indicated. Dilute hydrochloric acid ten to fifteen minims dropped into the milk just before it is taken has a decided stomatic action and aids the digestion. A pinch of common salt in a glass of warm

milk, or the addition of barley water, sometimes has similar effect. One of the few uses I have had for alcohol in this disease is small amounts of whiskey or brandy given with the food to chronic alcoholics who are not taking sufficient nourishment and beginning to show nervous depression. Cases with gastric disturbance, anorexia, nausea and vomiting require careful treatment and at times are very difficult to manage. Milk should be partly peptonized or combined with barley gruel. In extreme instances all the food should be stopped for a short time and then begun in small amounts, gradually increasing, giving first albumen water or whey. Whey contains more food value than albumen water as usually given, and is often retained when nothing else can be kept in the stomach.

In those cases where food is poorly taken and there is nausea and vomiting, it is well to think of acid autointoxication and examine the urine for acetone and diacetic acid. I have seen a number of such cases among children. The cause of this condition is not fully understood, but experience shows that carbohydrate foods and sodium bicarbonate are strictly indicated. Barley and other cereal gruels help to meet the indications for carbohydrate food. I believe that a normal equilibrium is more nearly maintained when some cereal such as strained oatmeal or barley jelly is given in addition to the milk diet. The same result is obtained by the more liberal diet now generally advocated in typhoid fever. We find infants, after a certain age, thrive better with the addition of starches in their food, not alone because of its effects on the curds, but also because of the additional food elements. The same applies to the typhoid patient. Another point that we

learn from our experience in feeding infants is the importance of pure, fresh milk. If this cannot be obtained then the milk should be pasteurized. I should consider it a privilege in my own case under such circumstances to have Walker-Gordon milk.

DRINK.—Just as important as knowing that the patient receives the proper amount of nourishment is seeing that sufficient water is taken. During the depressed mental state patients do not take as much water as they ought to have unless it is given at regular intervals. From two to three quarts daily between feedings are usually not too much, when the heart and kidneys are functioning properly. Patients who are not receiving the proper amount of water quickly show it by the dry-fissure tongue and increased nervous symptoms.

NURSING.—Not a few cases in the series owe much to careful, intelligent nursing. We generally realize the value of good nursing when we see the ill effects of the bad. It can be truthfully said that most of the ill effect depends upon inexperience. The nurse must be made to feel her responsibility, and appreciate the importance of the points just discussed—rest, nourishment, and drink. The ideal nurse will have a quieting effect upon the patient's mental state, will not allow undue exertion in the use of the bed-pan, during the bath, or in giving nourishment, will see that the patient gets the necessary amount of food and drink and will immediately note and report sudden changes in the patient's general condition. If she has the opposite effect, and does not accomplish these ends, she ought to be dispensed with for the sake of the patient.

One of the most trying things a nurse

has to do is keeping the nose and mouth clean. A little neglect makes this difficult to do. A dry mouth covered with sordes or a stuffed-up nose has a decided ill effect upon the patient's condition. An alkaline mouth-wash should be used after each meal and at least twice a day the teeth and tongue should be mechanically cleaned.

HYDROTHERAPY.—Upon the nurse much of the success of the bath depends. In the Boston City Hospital routine Brand bath has never been instituted. In individual cases the tub method was used, but usually sponge or fan baths were given. I entered the hospital strongly in favor of the tub method, and still feel that it has more advantages and fewer disadvantages when properly carried out than the other method. Good results, however, were certainly obtained with sponge and fan baths.

The object of the bath in any given case, as we know, is to get a reaction. When we get a proper reaction the rectal temperature drops one or two degrees, the superficial vessels become dilated, the heart is slowed, the tremor is lessened, and needed sleep usually follows; as a result, the nervous system is rested, digestion is improved and elimination is stimulated.

The temperature is the usual indication by which the bath is given. In certain cases where the temperature did not reach the bath point of $102\frac{5}{10}^{\circ}$ and there was considerable nervous depression, out of proportion to the temperature, baths were of the first importance and should be kept up. In delirium, with marked restlessness and excitability, fan baths proved less disturbing and more efficient than sponge baths in certain cases. This was especially true with children who are more

apt to get excited and worry about the baths than adults. As fan baths have proved useful, I give in brief the technique as used in the Boston City Hospital. Cold compresses are applied to the head, axillae and groins as in the sponge baths. An ordinary strip of surgical gauze large enough to cover the body when folded once is rung fairly dry from water at 110° F., and is then applied closely to the body, with the patient partially on the side. Palm leaf fans are used, the patient is fanned slowly for from five to ten minutes, the gauze being sprinkled as it dries or redipped in the warm water and reapplied. The patient is then turned to the other side and the same process repeated. The cold compresses on the head and the flexures should be changed frequently. Rapid sponging up and down the spine for a moment adds to the efficacy of the bath. Although this method lacks the element of friction so necessary in the tub and sponge bath, there was usually a good reaction and it was less disturbing to the patient.

Occasionally it would be reported that the temperature went up after the bath, instead of coming down. In such cases the pulse also becomes accelerated and the nervous symptoms more excited. I believe that in most instances this resulted from too rapid cooling with insufficient friction. It was invariably remedied by giving a milder bath for a longer time and with more friction in case of the sponge and tub bath.

The good effects of the bath are evident in almost every case, or, perhaps, I had better say in every case, when given with proper judgment and discrimination. I had occasion to care for a series of typhoids among children immediately after caring for these adult cases. The

same hydrotherapeutic measures were adopted. I was soon convinced that they require somewhat different management. One case I shall never forget. The nurse repeatedly reported that the baths seemed to be increasing the child's delirium, and were making him weaker. There was very little influence on the temperature, which remained about 104. With my strong belief in hydrotherapy, I doubted her statement, and began giving the baths myself. We tried several modifications, all of which produced fear and excitement on the part of the patient. Finally the baths were discontinued. Almost immediately the temperature began to fall, with a coincident improvement in the general condition. This was not the only instance of this sort observed. In quoting these failures and difficulties I hope that I shall not leave the impression that I do not consider hydrotherapeutic measures of the first importance in the treatment of this disease. I simply wish to emphasize the fact that hydrotherapy must not be considered entirely as a routine measure, and that the attending physician must hold himself responsible to fully instruct the nurse as to the details, and treat each case to some extent as an individual.

BOWELS.—Intelligent management of the bowels is another essential factor in the care of the typhoid fever patient. A suds enema every other day was all that was necessary in the majority of cases. If the bowels had been constipated previous to admission and the disease had not advanced beyond the ninth day, repeated small doses of calomel were given and followed by a suds enema. On the other hand, if there had been much diarrhoea, castor oil was preferred. Cathartics were not considered without danger and were not given without the above indications.

In cases where diarrhoea was a serious symptom, in the course of the disease a change in diet was usually sufficient to control the condition. Barley gruel for two or three days, with gradual return to a mixed diet, proved efficient both in diarrhoea and tympanites. During convalescence, one of the most frequent causes of recrudescence was constipation. The colon would be found full of scybalae even after the daily suds enema had been given with reported good result. In these cases small doses of castor oil or seidlitz powder, assisted by an oil enema, relieved the condition.

HEMORRHAGE.—During the likely period of hemorrhage, streaks of blood in the stools were taken as a warning of something more serious. In three cases small amounts of blood were noticed several days before a severe hemorrhage. Such cases should be treated accordingly, until the danger is past. When hemorrhages occurred it was customary to give a full dose of morphine, usually combined with atropine. This was repeated whenever there was restlessness. There were standing rules that such patients were not to be moved, except by order of the physician. The dejections were allowed to pass into an absorbent oakum pad until evidence of active bleeding were passed. Only cracked ice, albumen water, and whey were allowed at first with a gradual return to the regular diet. Osler's acid diarrhoea mixture and adrenalin chloride were the only drugs used. In cases where the loss of blood had been considerable, daily enemata of normal salt solution hastened convalescence. In extreme cases, salt solution given subcutaneously, was apparently a life-saver. It has surprised me to see what extremely sick hemorrhage cases sometimes recover.

PERFORATION.—No one of us doubts but that intestinal perforation in typhoid fever is a surgical condition which should be given the earliest opportunity for an operation. It is the physician's duty to appreciate this point and be quick in sharing his responsibility with the surgeon. The patient can be told with all honesty that exploratory laparotomy adds very little to the seriousness of his condition and that immediate surgical treatment adds much to his chance of recovery. One point that does not receive enough consideration in some cases is the post-operative treatment. This is the time when it is of first importance for the surgeon to share his responsibility with the physician. It is my opinion that the surgeon ought to treat just the surgical condition and leave the general care of the case in the hands of the attending physician as far as possible. This would help to increase the percentage of recoveries following operation.

A few very general remarks on the care of convalescence and then I shall be through. When the temperature begins to drop, the physician and nurse cannot let up on their watchfulness; this is one of the most trying times. The patient begins to regain strength and appetite. He is anxious to be doing things, but must be admonished and told not to be in a hurry or he will be sick over again. True relapses with return of fever—in most cases spleen and rose-spots—occurred in nine cases. Two followed the eating of solid food brought in by friends (?). In one instance oranges and nuts, and in another taffy candy. In five cases there was a definite story of overexertion. Two of these cases returned after having been discharged from the hospital. In

two cases it was noted that the spleen was still enlarged, although the temperature had been normal for the usual number of days. It is probable that a swollen spleen denotes continued activity of the disease process, and experience shows that it is not safe to allow patients to begin convalescent treatment until the spleen has returned to nearly its normal size.

On the third medical service, Boston City Hospital, it was customary not to increase the diet until the temperature had reached the normal level, then beginning with soft solids. First, milk toast, followed on successive days by the addition of farina, corn starch, custard, and soft eggs, if this increased feeding did not affect the temperature. When a good, generous diet could be taken without ill effect, and there was apparent gain in strength, the patients were given a head-rest and gradually gotten up and about. Usually this required from ten days to two weeks. In rare instances, where a slight irregular temperature persisted beyond the usual time, convalescence was hastened by feeding and getting these patients up.

In conclusion, let me again emphasize the value of care and good nursing in the treatment of typhoid fever. Close and continuous observation and attention to details are the physician's duties. He must keep constantly in mind the day of the disease in association with the pathological process; he must know that his patient is getting the proper amount of fresh air and sleep, nourishment and drink; he should examine his patient often enough to keep a mental picture of his physical condition, especially of the lungs, heart, and abdomen.

WHY SURGICAL FIXATION OF A MOVABLE KIDNEY WILL NOT RELIEVE DYSPEPTIC AND NERVOUS SYMPTOMS.*

CHARLES D. AARON,
Detroit, Mich.

Surgeons have been perplexed by not being able to relieve patients of dyspeptic and nervous symptoms by suturing a movable kidney. It was thought the cause was that the kidney did not remain in its proper position after being anchored. On this account many different operations were devised to find the one *par excellence* for a good result. It was the opinion of some that the kidney was sutured too near the diaphragm, of others not far enough away, of others that the kidney tilted one way or another, of others that it turned upon itself, yet all have been disappointed in not being able to relieve the dyspeptic and nervous symptoms by this operation. Hardly a week passes but some surgeon suggests a better surgical method for anchoring a kidney. If the dyspeptic and nervous symptoms were controlled through this operation there would not be so many different methods promulgated. The many methods of operation are analogous to the many drugs recommended for sea-sickness, none of which is efficacious.

Every physician of experience has observed patients who have had movable kidneys anchored and thus been made permanent invalids. Such cases in my own practice led me to endeavor to relieve this condition by properly fitted bands. It is not a question as to the success of the operation from a surgical standpoint, but whether the dyspeptic and nervous symptoms can be relieved. Many surgeons are

beginning to realize that movable kidney is more a medical than a surgical disease.

Glénard,¹ as early as 1885, called our attention to the fact that in every case of movable kidney a careful examination of the abdomen would disclose a dislocation of the stomach, or part of the intestine. This has since been verified by many investigators. We now know that movable kidney is usually an incident to general ptosis, and symptoms referable to the kidney are mainly due to intestinal displacement. The starting point of a movable kidney is the sagging in the flexure of the ascending colon. This is followed by sagging of the transverse colon which brings about traction on the pylorus which may cause a displacement of the stomach. Ptosis of the hepatic flexure of the colon brings about traction on the peritoneum, and encourages a downward and inward displacement of the right kidney. For this reason whenever a movable kidney is found it is an indication of a dislocation of the stomach or part of the intestine.

Since my report on the "Treatment of 442 Cases of Movable Kidney without Surgical Intervention,"² others are beginning to agree that movable kidney is a medical and not a surgical disease, and that surgical intervention is called for in only a limited number of cases. Many surgeons, to whom patients with movable kidney are referred, refuse to operate upon them. Sir Frederick Treves³ has abandoned the operative treatment for movable kidney, and says: "The time is not far distant when suturing the kidney will be one of the rare operations of sur-

*Read before the Michigan State Medical Society at Petoskey, Mich., June, 1905.

gery." He has made use of a truss with perfect satisfaction in 300 cases of movable kidney.

According to Israel,⁴ operation for movable kidney is irrational because the symptoms attributed to movable kidney are only in a small number of cases related to this displacement. These symptoms are mainly caused by a displacement of some of the other organs in the abdominal cavity. This author, in his recent work on "Surgery of the Kidney"⁵ says: "The modern treatment of movable kidney leads me to believe that there is too great activity regarding operation, but I feel that this tendency will not last longer than some other operations with which we have had experience. A short time ago it was thought that a large number of symptoms would be relieved by amputating the cervix or by removal of the ovaries, and now we are endeavoring to do the same thing by anchoring the kidney." He believes that surgical kidney fixation is superfluous, and refuses to operate in such cases.

A movable kidney is not a pathologic condition, for every normal kidney, on account of its attachment to the diaphragm, moves during respiration. It is only pathologic when it is palpable. We can readily see the irrationality of producing a pathologic condition by fixing a kidney that ought to be mobile. When a patient is in the dorsal decubitus position, gravity carries the kidney back to its normal position. This cannot take place when a kidney is surgically fixed, and under these circumstances we always have an abnormal condition. When the uterus is slightly adhered and immovable we may have dyspeptic and nervous symptoms. We advise radical means to relieve this condition. In cases of movable kidney,

surgeons irrationally endeavor to bring about an abnormal adhesion, and in this way induce a condition that may aggravate the symptoms we are endeavoring to relieve.

Surgeons have not been slow to realize that other than surgical means must be utilized to attain a good result in cases of movable kidney. J. Ross Watt,⁶ consulting surgeon to Ayr County Hospital, in a "Report of Successes in the Treatment of Floating Kidney by a New Method," records his results in 18 cases without surgical operation, rest, massage, or exercise of any kind. He arranges wing-shaped sheet-lead plates attached to corsets that so steady the floating kidney in its position as to fix it in three or four months.

Gallant⁷ takes the position that from 90% to 95% of women who suffer from movable kidney and associated ptosis can be relieved without operation; while a large percentage of those operated upon do not regain their health, even when the kidney is firmly fixed. The mobility of the kidney alone does not explain the extremely variable symptom-complex found in this condition. Nearly always there is displacement of other viscera and subnormal nutrition. Treatment must aim at the replacement and support of all organs in their proper places, of correction of functional derangements, and improvement of the general health.

Gallant⁸ in another article says: "Nephropexy, as carried out by the most experienced operators, shows a mortality of from 2% to 5%, a very considerable number of failures to anchor the kidney permanently in its normal position, even after it has been sutured a second time; many are but slightly relieved of the gastrointestinal and nervous symptoms; pain

referable to the lumbar wound is not uncommon, though some claim it is avoidable if the lumbar nerves are pushed aside; and a few instances of kidney hernia have been recorded. These considerations have led many notable surgeons, and the author, who formerly endeavored to fix these wandering kidneys, to a more careful selection of cases."

In a report of 100 cases of different grades of movable kidney, Madsen⁹ concludes: "In none of these cases could we consider that surgical interference was called for."

McWilliams¹⁰ reports 61 cases of movable kidney treated surgically in one of the New York hospitals. On the subject of treatment, he believes that the profession has been too optimistic concerning results of operation, and he agrees with Israel in the belief, that the only absolute operative indications are the result of pulling and kinking of the pedicle, particularly if these attacks are accompanied with retention. The natural conclusion to be drawn from all the information at hand is that a comparatively small percentage of those with wandering kidney should be operated upon.

With selected cases and newer methods of surgical fixation of movable kidney, the results up to date are poor. Balch and Torbet¹¹ record "Actual Results at the Massachusetts General Hospital Following Operative Treatment of Ptosis of the Abdominal Organs, with Special Reference to the Kidney, between 1890 and 1904," as follows:

Cases: Male, 6; female, 86; total, 92.	
Relieved.....	28
Not benefited.....	13
Not heard from.....	51
Total.....	92

Such poor results lead Balch to believe that in private practice, where one can

choose the cases for operation and for supporters, the results are much better than hospital work.

Why do we get such poor results in surgical fixation of movable kidney when it is performed by our best operators? It is because the kidney is not the organ causing the symptoms we want to relieve. A displaced stomach or intestine is the cause, and this must be removed before patients feel better. Rose,¹² speaking of movable kidney as a cause of dyspeptic and nervous symptoms, aptly says: "Schleiden has shown that some natural philosophers have accused the moon of influences on events in nature of which she is innocent, and compares the role the moon is made to play with the role of the cat accused of having broken dishes, while the kitchen maid is the malefactor. This applies to the role the floating kidney is made to play in regard to gastric and nervous symptoms."

It is true that patients seem to improve for a time immediately after anchoring the kidney. This is due to the patients lying on their back, when the viscera naturally fall into their normal position and thus functionate better. Soon after they begin to stand on their feet the whole list of dyspeptic and nervous symptoms returns. Weir Mitchell more than 20 years ago suggested that we keep all patients with movable kidney in bed and treat them with forced feeding. In this way he succeeded in relieving his patients. The same thing can now be done without compelling the patients to go to bed, by having them wear a properly fitting abdominal band that replaces all dislocated organs.

The anatomic relations of the hepatic flexure of the colon to the right kidney show how its displacement may drag the

kidney with it, yet its attachment is not strong enough to raise the hepatic flexure by surgical fixation of the right kidney. The left kidney is not as firmly connected with the splenic flexure as the right kidney is with the hepatic flexure. There is less likelihood for displacement of the splenic flexure, as this has an unusually firm attachment by means of the costocolic ligament, which has nothing like it on the opposite side. Besides, the left kidney is held firmly by the tail of the pancreas, which is firmly fastened to the posterior wall and therefore not so susceptible to being dragged down by a displaced colon.

Every condition that acts as an etiological factor in producing a weakness of the kidney attachment, favors a falling of the abdominal organs. The kidneys are held in position by their attachment to adjacent structures and by intraabdominal pressure. Any displacement is due to weakening of the attachments and interference with intraabdominal pressure. This pressure is weakened by an enlarged liver, relaxed stomach or displacement of any organ in the abdominal cavity, relaxation of abdominal walls, injuries to the pelvic floor, abdominal section, labor, and acute diseases associated with emaciation. Bacon¹³ believes there can be but little doubt that the displacement of the stomach and colon helps to cause a movable kidney. Stiller,¹⁴ who was the first to note that the tenth rib was movable in these cases, declares that a movable kidney is a local manifestation of a general condition.

The study of several hundred cases in my own practice, leads me to believe that movable kidney in itself cannot produce all the dyspeptic and nervous symptoms of which patients complain, unless there is a displacement of some other organ in the

abdomen. Many patients have a movable kidney without suffering any discomfort. I repeat what I have frequently said, that cases in which the kidney alone is movable, are those that give few or no symptoms. It must be remembered that the stomach may be displaced anywhere from its normal position to the symphysis; the same thing may take place with the intestines, liver or spleen. My results in over 600 cases, with a properly fitting band, have proved eminently satisfactory. Before fitting a band to patients with movable kidney, the location of all the abdominal organs must be accurately made out. This is done by palpation, auscultatory percussion, trans-illumination, inflation, röntgen ray, etc.

Location of the intestines is best made out by palpation. The transverse colon lies usually immediately beneath the large curvature of the stomach; when the position of the latter varies, a like variation in the position of the transverse colon takes place. The section of the transverse colon which is accessible to palpation, has either a horizontal direction, as is the case when the transverse colon is high, or it is bow-shaped, with the convexity downward. Prolapse of the transverse colon is quite common, and there are cases in which it takes the form of the letter V. In palpation of the transverse colon a dislocation can be easily made out. The transverse colon is felt in most cases as a soft rope; under pressure, low gurglings are heard; these suggest pulpy contents mixed with gases. In the majority of instances, when a movable kidney is found, it serves as an index that other organs of the abdominal cavity are displaced. All displacements must be corrected with a properly fitting band before we can attain a good result. The replacing of the

abdominal organs gives the patients almost immediate relief. They stand more erect, breathe easier, pain in the back ceases, feeling of heaviness in the legs disappears, nervous symptoms subside, digestive disorders cease, abdominal pain stops and circulatory disturbances are regulated and patients continue to improve from the beginning.

To prove that a band is indicated in a given case, the physician should stand be-



hind the patient, passing his arms on either side and placing both of his hands on the lower abdominal wall (Fig. 1). When the hands of the physician are in this position, the abdominal mass just above the pubes can be easily raised. By supporting the abdomen in this way the patient will immediately say that he feels much better. Removing the hands suddenly allows the abdominal mass to fall, which produces a distressing sensation due to the falling of the displaced viscera. This is a positive test for the beneficial effects of a band. When the patient has no relief from lifting the abdomen, and

feels better when allowing the abdomen to fall, the band is not indicated.

In a recent article Einhorn¹⁵ says: "That a movable kidney may be entirely cured by medical means was first proved by Henderson. I have since observed such cases. Notwithstanding the importance of this subject, not much is to be found about it in literature, and the fact that prolapsed kidney may be restored to a normal position has certainly not become generally known to physicians." After reporting several successful cases, he adds: "As will be gathered from the above histories, the treatment consists mainly in the wearing of a properly fitted abdominal supporter and ample feeding." Stengel¹⁶ on the treatment of movable kidney, says: "The perirenal fat can be restored by forced feeding. Another plan to be used in the majority of cases is to support the kidney by a properly placed pad or bandage. A pad to be effective should make pressure upward, backward, and toward the right." Iapovski¹⁷ says: "In cases in which the symptoms are the result of nervous irritability, it is better to use the expectant plan by strengthening the patient to overcome his nervous disturbance. The measures to be employed for this purpose are the wearing of a properly constructed abdominal support and proper feeding."

Glénard, Kuttner, Ewald, Boas, Rosenheim, Strauss, Riegel, Stiller, Kelling, Einhorn, and others, believe in a properly fitted belt. Rose, Weissmann, Rosenwasser, Schmitz, Clemm, and others, recommend the plaster belt. They all agree that a proper support of the abdomen brings about a restoration of the nor-

mal diaphragmatic breathing, and in this way helps the cure.

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DISCUSSION.

H. W. LONGYEAR,
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There is no question in my mind but that properly fitted abdominal bands give great relief to symptoms in many cases of nephroptosis. But patients get tired of wearing them, especially when they only partly relieve, as is frequently the case, and then the operation is the question. When we consider that the first operation, by Hahn, was done only a little more than twenty years ago, it is no wonder that it is not yet perfected. When we also consider the great variety of opinions on the etiologic question of the matter, we wonder less that operative procedures are

still unsatisfactory—as they admittedly are. All kinds of reasons are given for the dropping of the kidney, but hardly any thus far are satisfactory. Why does the right kidney prolapse fifteen times to the left once? Why is it the right loose kidney alone that gives the symptoms attributed to it? I think I have an answer to these questions, and with the view will be the suggestion for a satisfactory operation. I have lately been making some observations in this line, both on the cadaver and on the living subject, and find that there is a distinct cord or tendon, formed by the growing together of the foremost of the fatty capsule, into a prolongation of peritoneal strands which pass down from the lower part of the kidney to the posterior wall of the ascending colon, where it is firmly attached. This results in the full caecum pulling the kidney down, and as the duodenum is closely attached to the fatty capsule, at its inner aspect, this viscus is pulled upon. Hence we have the digestive disturbances and also the explanation of the fact that it is the right kidney that usually comes down, and the right kidney that gives the symptoms. Founded on the fact of the presence of this ligament, from the lower pole of the kidney to the bowel, I am devising an operation which I hope will be successful in curing not only the displaced kidney, but also the prolapsed caecum, which usually attends these cases.

WILLIAM BISHOP, Bay City: For the past ten (10) years I have been listening to medical and surgical papers from the Atlantic to the Pacific and this paper is the most unusual one I have ever heard.

As day by day we realize how one by one and score by score of the medical diseases are appropriated by the surgeon, it is surprising to find a man who claims to have reclaimed for permanent cure a condition once having been amenable to surgical treatment only.

If the doctor's contention is proven by subsequent demonstration I will crown him with an halo of gratitude.

The cases of nephroptosis coming under my care have never been cured of their nervous and dyspeptic symptoms whether treated medically or surgically unless some other pathological condition such as a diseased appendix, gall bladder, ulcer of stomach, or pelvic organs is discovered and removed.

Floating kidneys do not produce permanent or persistent symptoms.

INDIGESTION IN INFANTS IS THE MOST FREQUENT CAUSE OF SUMMER DIARRHŒAS.*

CHARLES DOUGLAS,
Detroit, Mich.

Indigestion in infants is always due to the disproportion between the fat, proteids and sugar which an infant receives at each meal and the amount of digestive fluids which are secreted and necessary for the conversion of each of these foods into healthy aliment; or it is due to an error in the whole quantity or quality of foods or other substances which are introduced into the stomach. Nature supplies glands in the human digestive tract which secrete fluids respectively suited for digesting these three different foods—fat, proteids and sugar—but she has not provided for the digestion of any other than the milk form of these foods, except in very small quantities.

A laxative is something which cannot be digested, consequently all indigestible foods become laxatives. They are foreign to the digestive tract, and nature's plan is to cast out everything which enters this tube when it cannot be digested perfectly and thereby utilized in heating the infant or in building up new tissues and thus securing growth. This casting out of unsuitable foods is generally known as diarrhœa. All articles which are subject to fermentation or decomposition under the influence of heat or moisture make these changes rapidly, and become laxatives after they enter the digestive tract if there is not sufficient digestive fluid there to convert them into healthy pabulum. In the processes of fermentation and decomposition, new products are formed

which are often of a very irritating and poisonous nature. Some of these can be absorbed to a moderate extent but the great majority of them are so foreign to the human economy that nature's usual resources are promptly called upon to dislodge them either by vomiting or purgation or by both processes together. In this way, they become emetics or laxatives and their repetition produces gastritis or diarrhœa. Where these poisonous products are absorbed, toxemic results with highly feverish disturbances following quickly, causing meningeal, spinal and nephritic irritations which may act seriously if the elimination through the bowels and kidneys does not remove these toxemic products rapidly.

Decomposition or fermentation of foods produces irritation either in the stomach or bowels. When this occurs in the stomach, it causes acute inflammatory disturbance which is commonly designated as indigestion with the usual symptoms of gassy eructations, nausea, more or less vomiting and feverish disturbances in proportion to the intensity of the irritation and the frequency with which it is repeated. When this decomposition occurs below the pylorus, it causes enteritis or irritation of the lining of the intestinal tract from that point to the anus. This irritation is dangerous according to its intensity and duration and is commonly designated as duodinitis, colic, diarrhœa, cholera infantum, colitis or dysentery according to the character of the stools. These different terms are only names for nature's efforts to first dislodge this irri-

*Read at the Petoskey meeting of the Michigan State Medical Society, 1905.

tating and poisonous material, and secondly to relieve the subsequent inflammatory processes produced by this decomposing food. While decomposing food is not the only force causing these diseases, it is undoubtedly the most active and powerful one contributing to these results and its absence would prevent the vast majority of these diseases.

Whether this inequality between food and the power of the digestive fluid is due to errors in the dietary of a healthy infant, to errors in the quality of the digestive fluids caused by sicknesses such as infectious diseases, exposure, changes of the seasons, cold or whatever else, it is immaterial. The result is a determined effort of nature to dislodge decomposing products by emesis or diarrhœa. This is always the natural result. The usual difficulties with which the physician has to contend affords through careful intelligent inspection of the stools, good reading material of the exciting cause, and the cure depends very greatly upon his ability to do this reading correctly.

It is not my intention to go into the details of the many etiological factors which assist in producing these disturbances. It is the desire of the writer to touch only upon these attacks produced by the regular foods of infancy which so frequently are caused by errors in quantity and quality. The errors caused by varieties of those foods, when unsuitably given to infants, can be read in the same way.

As only the milk variety of these three foods—fat, proteids and sugar—is utilized by nature in nourishing the infant, all the errors occurring from the use of them during the first two years which cause stomach and bowel disturbances can be traced to the improper quality or quantity

of these foods in the infant's dietary. Where starches such as oatmeal, rice, barley, wheat flour, imperial granum, Mellin's food, Horlick's food, Eskay's Nestle's, Allenbury's, or indeed any other of the proprietary foods, or even bread, crackers or toast are used like sugar in excess of the digestive power they come under the same ban of injurious foods as does the excessive sugar in foods, because all these different forms of foods are starches and may be called sugars, for they are digested by the same fluids as are the different forms of sugar. All starches are converted into sugar in the process of digestion.

Perfect digestion of all foods is shown by one or two stools each day of an even yellowish color, and by retaining formation or shape after being voided as do those of the healthy adult. Such stools have no putrid or foul odor, and infants enjoying such digestion do not suffer from colic, have little gassy discharges, sleep well at night, and are happy in day time. These infants grow steadily.

The infant who is overfed even with suitable foods, or who receives foods which it is unable to digest perfectly gives the opposite picture, one very dry crumbly stool or several soft ones daily, showing no formation but on the contrary are soft or splashy in character, mixed in colors, and have a sour putrid or foul odor. This infant suffers from colic, has frequent gassy discharges from the mouth or anus, sleeps poorly and is altogether very unhappy when awake.

In feeding a large number of infants, the writer, in order to avoid mistakes, was compelled to prepare a chart which would show all foods and the amounts given daily, the sizes of the meals, and the results on the infants as shown by the

weight, stools, sleep and temperature. These feeding charts are filled each day by the mothers who by examining the stools become very expert in detecting the smallest errors in quantity or quality of foods consumed daily. In this way the writer has accumulated over fifteen thousand daily records of the foods consumed, their exact amounts, and also the exact results produced each day on every infant.

As errors are being continually made in the amounts of fat, proteids and sugar or starches which are fed daily, very frequent opportunities are presented of seeing the effect these errors produce on the stools, and the general condition of the infants also. So decided, uniform, and unmistakeable are these results that it soon becomes an easy matter for the mother to detect at once whether it is the fat, proteid, sugar, or starch which is causing the unhealthy number and appearance of the stools.

The following chart No. 1 is an exact copy of a six day one made by a mother.

The first 16 items show correct use of foods and the results shown in the items from 18 to 32 prove the correctness of the work. Such answers as this chart shows always guarantee success.

Chart No. 2 illustrates the bad results produced by too liberal amounts in each of the foods, and shows what frequently appears on these charts when mistakes are made. In these cases the foods are in excess of the digestive power of the fluid secreted at that meal for the particular food which decomposed, and were hastily or violently thrown out by nature through the anus in an effort to protect the infant from these poisonous and injurious products lying in the alimentary canal.

Nature's hurried and protective work is

always shown by pain, frequent stools, loss of appetite, disturbed sleep, and high temperature, all of which are recognized by physicians as our summer diarrhoea, cholera infantum, enteritis, colitis, dysentery, etc., according to the appearance of the stools. These acutely observing mothers, who fill these charts, explain these results to me by saying they have fed too much fat, proteid, sugar, or starch, and forthwith correct the disturbance by reducing that food which they think causes the error.

The results demonstrated by these charts prove the correctness of our generally accepted dietetic treatment in the early stages of all forms of diarrhoeal or bowel disturbance. They are the following:

1. That greasy stools call for less or no fat in the food.
2. That cholera infantum calls for the removal of all sugar from the dietary. The sugar in milk calls for its removal.
3. That dysenteric or mucous stools forbid the use of all proteids.
4. That mixed varicolored stools call for a general reduced dietary, and that these reductions must be in direct proportion to the severity of the symptoms,—very frequent stools or high temperature demanding total abstinence from food and only a little whiskey or brandy with water for the first few days of treatment.

Starch waters are admissible in mild cases from the beginning of the attacks, and after the first few days in severe attacks also. With a tendency to formed stools, experience with these charts allows a gradual return to the prohibited foods.

NAME—C. F. H.

AGE—4 mo. 1 week.

	Oz. Teaspoon	Oz. Teaspoon	Oz. Teaspoon	Oz. Teaspoon	Oz. Teaspoon	Oz. Teaspoon
1 Date Sept.....	27	28	29	30	1	2
2 Cream.....	3	3	3	3	3	3
3 Human Milk.....						
4 Skim Milk.....	19	19	19	19	19	19
5 Whey.....						
6 Lime Water.....	3	3	3	3	3	3
7 Boiling Water.....	22	22	22	22	22	22
8 Milk-Sugar.....	1½	1½	1½	1½	1½	1½
9 Rice flakes Starch....	1-3	2-0	2-1	2-2	2-3	2-4
10 Oat Flakes.....				0-3	0-3	0 3
11 Unused Food.....	5	4	4			
12 Feed how Often.....	When hungry	When hungry	When hungry	When hungry	When hungry	When hungry
13 Day meals, No.....	2-4	6	6	6	6	4 - - - 2
6 A. M. to Size.....	4-4½ oz.	4½ oz.	4½	4½	4½	4½ 5
6 P. M.....						
14 Night No.....	2 1	2 1	2 1	3	2 1	3
Meals Size.....	5½ 5	5½ 5	5½ 5	5½	5½ 6	5½
15 Whole day's Food....	42	43	43	43½	44	44½
16 Whole No. of meals..	9	9	9	9	9	9
17 Spits Vomits.....	Natural	Natural	Natural	Natural	Natural	Natural
18 Medicine.....						
19 No. of stools.....	1	1	1	1	1	1
20 Color.....	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
21 Odor nat. or foul....	Natural	Natural	Natural	Natural	Natural	Natural
22 Kind, splashy, soft or formed.....	Formed	Formed	Formed	Formed	Formed	Formed
23 Colic, Yes or No....	No	No	No	No	No	No
24 Gas, Nat. or more....	Natural	Natural	Natural	Natural	Natural	Natural
25 Gas, Up or Down.....	Natural	Natural	Natural	Natural	Natural	Natural
26 Sleep, Day, Night....	Good	Good	Good	Good	Good	Good
27 Temper, Good, Cross.	Good	Good	Good	Good	Good	Good
28 Hungry before meals	5 to 10 Min.	5 to 10 Min.	5 to 10 Min.	5 to 10 Min.	5 to 10 Min.	5 to 10 Min.
29 Temperature Feverish or Not.....	Natural	Natural	Natural	Natural	Natural	Natural
30 Urine.....						
31 Weight.....	14-13	14-14	14-15	15-2	15-1	15-3

CHART No. 2.

	OVERFEEDING OF			
	CREAM SHOWS	SUGAR SHOWS	PROTEIDS SHOWS	TOO LARGE MEALS SHOWS
Vomiting.....	Yes	Yes	No	Yes
Number of Stools.....	4 to 6 Daily	4 to 12 Daily	3 to 10 Daily	2 to 4
Color.....	Yellow	Green or White	Mostly Green	Mixed
Odor.....	Putrid	Sour or Foul	Foul	Foul and Sour
Kind.....	Soft and Greasy	Watery or Splashy	Mucous or Slimy	Mucous Watery or Greasy
Colic.....	Yes	Yes	Yes	Yes
Gas.....	Yes	Very Much	Some	Yes
Sleep.....	Poor	Poor	Poor	Poor
Fever.....	100° to 101°	100° to 104°	99° to 101°	Variable
Weight.....	Stationary or Losing	Losing Rapidly	Losing Steadily	Losing a Little

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JANUARY, 1906

Editorial.

NINETEEN HUNDRED AND FIVE.

During 1905 there have been a number of valuable contributions to the science of medicine. There has also been in evidence an enthusiasm on the part of the profession, not only for improving its own condition and uplifting its own members, but also for acquainting the laity with certain important truths, a more thorough knowledge of which will go far toward increasing human health and happiness.

Much of the scientific work has been along the line of testing the truth or falsity of previous discoveries, more especially in defining more clearly the limitations of certain diagnostic procedures, such as cryoscopy, blood pressure determinations and the macroscopic Widal test. Nevertheless, most important new work has been done, notably by Hektoen, on the purification, by filtration, of the virus of measles and the inoculability of that disease; by Wollstein, on the agglutination of the blood in pertussis, and by Dyers, on the production of a serum—*leprolin*—prepared from the bacillus of leprosy.

The most noteworthy event in medical science was the discovery of the etiology of syphilis by Schaudinn and Hoffmann, who early in the year described the *spirochaete pallida*. At first looked upon with

distrust, the work of these investigators has been apparently confirmed in many hundreds of cases and in various parts of the world, so that we have almost positive assurance of the truth of their assertion. The inoculation of the lower animals with syphilis has been carried, during the past year, farther than ever before.

In the United States, we have passed through two epidemics, the one of cerebrospinal meningitis and the other of yellow fever. The results of the efforts of control in the former disease were discouraging; in the latter, magnificent. The practical application of the mosquito theory has saved thousands of lives and millions of dollars.

The American Medical Association has done much during the year just closed. It has shown a commendable interest in medical colleges, the first meeting of the Council of Education having been held during the year. Valuable data concerning students has been published in the Journal, and from it we learn that the number of medical students is less than at any time since 1900. This may be explained both by the increased requirements and by the great prosperity of the country. One of the most important steps ever taken by our national society was the establishment of the Council of Pharmacy and Chemistry. We may well be proud of the foremost position which Michigan has taken in the inception of this idea. Active steps have also been taken toward the national incorporation of the A. M. A.

Medical legislation in the various states has been, on the whole, encouraging. Compulsory vaccination has been upheld by the Supreme Court of Massachusetts and an act repealing the same has failed in California. Iowa has a new and ad-

mirable registration law; Kentucky has provided for the disinfection of all railroad cars; the powers of state boards have been increased in various states; many municipalities have passed anti-spitting laws and there is a distinct tendency to increase the scope and authority of Boards of Health.

The County Societies—the most important branches of medical organization—both in this and in other states, have enjoyed unprecedented success. There is a noticeable movement on the part of the county society to aid in the “business end” as well as in the scientific work of its members. Instances of this may be cited in the Defense League of the Wayne County Society and the collection department of the Cleveland society. Above all, there is a tendency toward “unity, peace and concord,” without which any organization must fail.

Perhaps the most encouraging feature of 1905 was the great increase in popular interest and knowledge on certain medical topics. The crusade against tuberculosis has taken immense strides, so that to-day the working man knows more about its infectiousness and its prophylaxis than did the educated man three years ago. There are now no less than 48 American and five Canadian associations among the laity which have for their object the dissemination of knowledge concerning the prevention of tuberculosis.

We note, with sadness, that the men who did much of the pioneer work, on which modern medicine is founded, are passing away. During the year there were lost to science, Abbe, the physicist, known to all as the inventor of the Abbe condenser; Meissner, the physiologist, whose name will always be associated with the plexus of nerves in the walls of

the intestine; Wernicke, whose sign, that of the hemiopic pupillary reflex, will forever be used by neurologists; Mikulicz, the surgeon, whose name many contrivances bear, and Nothnagel, than whom there has never been a more scholarly and astute clinician.

BENJAMIN R. SCHENCK.

THE IMPORTANCE OF THE EXAMINATION OF HUMAN BREAST MILK.

Those physicians who have to do with infants lose a very valuable prognostic and therapeutic aid if they do not in selected cases analyze the breast milk. Two recent cases in the practice of the writer emphasize the fact in opposite ways.

Mrs. H. last July brought a child aged five months suffering from eczema capitis of eight weeks duration. The child was entirely breast-fed. It had been treated by two physicians, one in Chicago and one in Detroit according to the latest approved methods for eczema. But after eight weeks the head was worse than ever, patches had appeared on the arms and hands, and there was the usual upset household, a baby shrieking by day and night and a mother and nurse worn out by loss of sleep. The excellent local treatment of the eczema having been without effect, a cause for the condition was immediately sought in the nutrition of the child. A sample of the mother's milk was examined and showed between one and two per cent. of fat with a specific gravity indicating deficient proteids. The number of nursings per day was immediately reduced, two good bottle feedings of a suitable formula were given the child, the former local treatment for the eczema continued, and an effort was made to improve the mother's milk by diet and tonics. By

the end of a week, the child showed a slight improvement but a second examination of the breast milk gave only a little more than two per cent of fat. Two more bottle feedings were ordered at once and the nursings reduced to three a day. In two weeks the child was entirely well and in the four months since, the eczema has never returned.

Mrs. S.'s baby, five days old, with ten stools a day, not meconium. Stools loose, smooth, deep orange color, usual healthy aromatic odor, acid reaction; microscopically showed an abundance of fat drops, and lakelets. Examination of breast-milk showed over seven per cent. of fat. Regulation of mother's diet brought the fat down nearly to normal in about ten days, the stools were reduced to six and later to four, the child remaining well. No medicine was given either mother or child. The history of the pregnancy accounted for the high per cent of fat in this case. There had been a persistent glycosuria and the physician in attendance had eliminated carbohydrates from the diet. The patient then, for a number of months had been getting a diet composed almost exclusively of proteid and fat, and the composition of the milk after delivery was just what might have been predicted from the diet.

In each of these cases, the therapeutic key which led to prompt and satisfactory recovery was furnished by the analysis of the breast-milk. Many cases of indigestion and diarrhea in breast-fed infants, will give similar results. The necessary analysis can be done by any practitioner who does not have access to a clinical laboratory. Holt's milk-testing apparatus can be bought for two dollars. If one has a water or electric centrifuge, it is only necessary to have a graduated tube

costing thirty cents and a lactometer and cylinder which can be used to obtain the specific gravity of a small amount of fluid. The microscopic examination is useful but much can be done without it.

HERBERT M. RICH.

County Society News.

ELEVENTH COUNCILOR DISTRICT.

The Eleventh Councilor District medical meeting, held at Big Rapids, Mich., Nov. 2d, 1905, was a big success. More than sixty physicians were present, coming not only from the district but from different parts of the State.

The doors of Mercy Hospital were thrown open to the physicians from 10 a. m. to 1 p. m., and many interesting and instructive cases were witnessed. A pleasant repast was served by the sisters, after which the doctors adjourned to the new and finely equipped operating rooms, where Dr. W. T. Dodge catheterized the ureters of a female patient.

In the afternoon from 1 to 5 the doctors listened to a most interesting and ably presented program, which consisted of a paper on "Intestinal Surgery," by Hal C. Wyman, of Detroit; "Some Cases in Which the Haughey Suture Can Be Used," W. H. Haughey, Battle Creek; "Injury to the Brachial Plexus During Operation for Cancer of the Breast," F. R. Blanchard, Lake View; "The Blood in Relation to Disease From a Scientific Standpoint," by W. P. Gamber, Stanton; "Ectopic Pregnancy, With Notes of a Few Cases,"* by E. C. Taylor, of Jackson; "Injuries of the Eye-ball, With Report of Cases," L. A. Roller, Grand Rapids; "Contusion of the Hip Joint," by Geo. S. Williams, of Muskegon.

In the evening from 7 to 9 Dr. and Mrs. W. T. Dodge gave a reception to the physicians at their beautiful home on State street.

At 9 o'clock a complimentary banquet at the Northern Hotel was tendered by the Mecosta-Newaygo Medical Society and was a complete success in every particular. After the banquet Dr. David Inglis, of Detroit, gave an excellent address on "The Medical Man and the Commonwealth."

Dr. Victor C. Vaughan, of Ann Arbor, gave a most excellent address on "Tuberculosis and Its Treatment." Prof. W. N. Ferris closed the program with a few remarks.

A. A. SPOOR, Sec'y.

*Dr. Taylor's paper arrived too late for publication in this issue, but will appear in the February number.—EDITOR.

THE BLOOD IN RELATION TO DISEASE FROM A SCIENTIFIC STANDPOINT.

W. P. GAMBER, STANTON.

It is over 250 years since Dr. Harvey put together the glimmer of light which emanated from the learned men during the many preceding years and made the wonderful discovery of the circulation of the blood. He died in 1657, nearly forty years after the discovery had been made, having lived to see his theory generally accepted, and himself honored as a benefactor of his race. Since that time much has been learned about the blood.

In the present day and age of the world a diagnosis in many diseases is not complete without a microscopical examination of the blood, a chemical examination of the stomach contents, a chemical and microscopical examination of the urine, or a microscopical examination of the sputum. Any one of these and sometimes all of them being necessary in order to make a scientific diagnosis. The scope of this paper will be confined to the blood; and, while the subject is a large one, it will suffice to give the more important details, which it is hoped may prove helpful hints to the general practitioner.

The specific gravity of normal blood is about 1.060. Its color is subject to considerable variations, but is generally said to be red. The color depends upon the hemoglobin in the red cells. Hemoglobin belongs to the group of proteids, containing about 96 per cent. of albumen and 4 per cent. of an iron-holding pigment, hemochromogen; and while this union is not definitely understood, it is in such a way as to render the hemoglobin (Hb) comparatively insoluble. When the Hb contains oxygen in excess, as in arterial blood, the combination is called oxyhemoglobin; in venous blood the two co-exist, but Hb is in excess, while in asphyxia the coloring matter is almost entirely Hb.

The proportion of the white blood cells to the red under normal conditions is 1:700, or about 7,000 to 8,000 white cells and 5,000,000 to 5,500,000 red cells in a cubic millimeter. This varies much in many diseases. The white cells in a state of health may be divided as follows:

- (1) Lymphocytes, 22 to 25 per cent.
- (2) Large mononuclear leucocytes, 2 to 4 per cent.
- (3) Polynuclear leucocytes (neutrophile), 70 to 72 per cent.
- (4) Eosinophile leucocytes, 2 to 4 per cent.

As to the formation of red and white cells there are still various opinions, but the weight of evidence at present is as follows: In embryo the

formation of red cells is chiefly in the liver, to a less extent in the spleen, while the bone-marrow, which is less prominent at first, gradually takes up this function and at birth forms the chief seat; and from our present knowledge the bone-marrow in later life is the chief seat of the formation of red cells, but in certain disease conditions the liver and spleen may resume their former rôle in the production of red cells. Under normal conditions the production of leucocytes in adult life is limited to the lymphoid structures, including the lymph nodes, spleen, marrow and hemolymph nodes.

An increase of the leucocytes which is distinctly above normal is called leucocytosis. (When the increase is chiefly the polynuclear leucocytes the condition is called polynuclear leucocytosis or simply leucocytosis. If an increase of the lymphocytes alone, it is termed lymphocytosis; and when several varieties are increased, it is called mixed leucocytosis.) There are three forms of physiological leucocytosis, namely:

- (1) Leucocytosis of digestion.
- (2) Leucocytosis of pregnancy.
- (3) Leucocytosis of the new-born.

After a full meal the number of leucocytes in the healthy person is raised about 33 per cent. It begins in one hour, reaches a maximum in three or four hours, and then begins to decline. The increase is less marked in anemic subjects. If the increase is only slight or fails entirely it is due to a torpid state of stomach and bowels. It is also absent in most cases of carcinoma of the stomach.

During pregnancy it is increased in about the same proportion as in digestion, but after parturition the leucocytes gradually diminish, reaching the normal in about fourteen days.

The leucocytes of the newborn infant are about 100 per cent. above normal, but begin in three or four days to diminish and usually take eight or ten years to become normal. The leucocytosis of digestion and of the newborn is due to lymphocytes, but that of pregnancy is a mixed leucocytosis.

Pathologically we have leucocytosis following acute hemorrhages, the various forms of anemia, antemortem when dissolution is slow, and that due to inflammatory conditions. Pathological leucocytosis results nearly always from an increase of the polynuclear leucocytes.

"It is now apparent that leucocytosis represents Nature's attempt to rid the blood and the system, by means of leucocytes and their products, of the bacterial and toxic causes of disease." (Ewing.)

The leucocytes are the "standing army of the living organism" and when necessary to combat

any disease condition or inflammatory process, they increase in number according to the requirements of the case. These white cells of the blood are always watching for these tiny enemies, like a cat hunting mice, and when they find them they at once try to kill them. In the battle against these disease germs many of the leucocytes get killed, and the resulting matter is called pus. When this pus is found in a cut, the laity say they have caught cold in it. If we become exposed, get our feet wet, and the cold air blows on our heads and lowers the vitality of the epithelial cells of the nasal mucous membrane we get a "cold in the head." The leucocytes at once gather around the spot, while the capillaries pour out more food for the cells. During this process some serum and many of the leucocytes pass through the delicate membrane, and we find ourselves in the condition the little boy was when he was commanded to blow his nose, when he replied that he did blow it, but it would not stay blown.

This process by which bacteria are englobed and digested by the leucocytes, through their amoeboid movement constitutes phagocytosis, and in this process the polynucleated cell are the most active. In an experiment by the writer, in which a sterile culture of the anthrax bacilli was injected under the skin along the spine of a frog, and several hours after some of the exuded material properly stained and examined under the microscope, many ingested anthrax bacilli partially destroyed could be seen, and the frog seemed no worse for the operation. Some of the same culture was injected under the skin of a rabbit, which died from the effects in twenty-seven hours, and the blood was swarming with anthrax bacilli; and, while the leucocytes destroyed many bacilli, they were overpowered in the end.

In the pathology of the blood, we will confine ourselves mainly to the more important diseases in which the blood is affected. Ewing says: "In no other disease do the red cells suffer destruction so constantly and to such an extent as in the toxemia of diffuse inflammation caused by the common pyogenic bacteria." Hayem and Toenissen placed the average loss of the red cells in ordinary septic fever at 200,000 to 1,000,000 per week, while a continuous diminution was found to persist as long as suppuration continued. "Various forms of septicemia not infrequently reduce the red cells below 2,000,000, but none appear to act more violently than does puerperal or uterine sepsis." (Ewing.) The Hb is also reduced as low as 20 per cent. in these cases. Appendicitis also comes in for a proportionate loss in these two elements, depending on the severity. The increase of leucocytes varies from a slight increase

in exudative cases, to 40,000 or 50,000 in cases with severe general infection. Dr. Ochsner, of Chicago, was asked at our State Medical meeting in Grand Rapids if he depended upon the blood-count in his operations for appendicitis. He replied that they made a blood-count in all acute cases, but did not rely upon this as their main guide in operating. If the blood-count shows 30,000 or more leucocytes it is evidence that there is considerable active disturbance, although Cabot reports a case with 33,000 white cells which recovered without interference. But on the other hand, if you find a case of appendicitis or puerperal sepsis where there are 30,000 or more white cells to the cubic millimetre followed by a rapid decline of the leucocytes to normal or less with other severe general symptoms, it is evidence of the failure of the system in the production of white cells, which are being overcome by the increasing numbers of bacteria. In such a case look for rapid dissolution.

In fevers there is more or less leucocytosis, largely depending on the amount of fever, but it is more marked in pneumonia, diphtheria and scarlet fever, severe cases showing from 40,000 to 50,000. In all the fevers there is in the later stages a diminution of the Hb and also of the red cells, with resulting anemia, but in pneumonia, diphtheria and typhoid fever there may be polycythemia (increase of the red cells) during the earlier stages due to concentration of the blood. In all or nearly all cases of pneumonia there is an excess of fibrin in the blood which increases its coagulability, with an accompanying loss of chlorides, principally chloride of sodium which must be supplied medicinally. In diphtheria the use of antitoxin by limiting the progress of the infection, tends to prevent further destruction of blood-cells. Within half an hour after the injection of antitoxin, the leucocytes, especially the polynuclear forms, if previously abundant, show a marked diminution, and in most cases, although the leucocytosis returns after 24 or 48 hours, it seldom reaches its previous grade. In tuberculosis there is generally a loss of red cells and of Hb, and where there is a mucopurulent expectoration, some increase of leucocytes. Ewing says: "In phthisis, as well as in other tuberculous processes, great caution must be used in judging of the patient's improvement from an increase in red cells or Hb," and says that he has seen the Hb and red cells increase while the patient was rapidly losing flesh, the lesions advancing, and the total quantity of blood doubtless falling.

In chlorosis there is a primary anemia which occurs almost exclusively in young women after the establishment of menstruation. This results

from a defective hematogenesis which affects principally the Hb, but, secondarily the red cells are also diminished. On an average the Hb is reduced from 35 to 45 per cent., with cases reaching as low as 20 per cent, and with the loss of Hb there is a corresponding reduction in the specific gravity. As the chief alteration in the blood is the loss of Hb, the Hb-index is one of the diagnostic features of the disease. Secondarily there is a loss of red cells, and in cases of average severity the red cells run from 3,500,000 to 4,000,000, while exceptional examples show less than 3,000,000 red cells. A high count of red cells is a favorable prognostic sign. The average case of chlorosis shows no abnormal variation in numbers or production of the leucocytes, but as the case continues to grow in severity there is a progressive diminution.

Progressive pernicious anemia is a disease of the blood resulting from defective hematogenesis, peculiar morphological changes in the red cells, and by characteristic changes in the bone-marrow. The specific gravity of the blood is constantly reduced, owing to the loss of both albumens of the plasma and the Hb of the red cells. The average case registers between 20 and 40 per cent. of Hb, while it varies from 10 to 70 per cent. When the disease is well established, the red cells vary slightly above or below 1,000,000. Megaloblasts (enlarged red cells) form about 90 per cent. of the red cells, measuring from 11 to 16 micro-millimetres in diameter, while normally they are 9 m. m. "It may be said that unless 33 per cent. of the red cells are distinctly oversized, the diagnosis of pernicious anemia should be made with reserve." (Ewing.) Nucleated red cells called normoblasts may be said to occur in all cases of pernicious anemia, but they vary greatly and sometimes are hard to find. They usually increase with the severity of the blood changes. The leucocytes in well established cases are markedly reduced in number with a relative increase of the lymphocytes. As to etiology, it is of idiopathic origin.

LEUKEMIA.

There are two forms of leukemia, namely: myelogenous and lymphatic. In the average chronic case of leukemia the red cells are usually reduced to 2,000,000 or 3,000,000, with a variation from 1,000,000 to 5,000,000. The per cent. of Hb is about 50 to 60. The leucocytes in moderately severe cases are from 100,000 to 200,000, with an average of 138,000. There may be 1,000,000. In the myelogenous form the myelocytes, which are mononuclear leucocytes with neutrophile or with eosinophile granules, are increased from 20 to 60 per cent. In the

lymphatic form the excessive leucocytosis is made up chiefly by the lymphocytes which constitute 85 to 95 per cent. of the white cells. The swelling of the lymph nodes is one of the first noticeable symptoms, having preceded all other signs for some months in some lymphatic cases. The enlargement of liver and spleen occurs in both variety of cases.

Pseudoleukemia is a primary disease of the lymph nodes and lymphatic structures, characterized by progressive enlargement of various chains of lymph nodes, and by secondary multiple growths of lymphoid tissue throughout the lymphatic system. It is of toxic and usually of infectious origin. The spleen is always enlarged, usually to a very considerable size. The red cells often number 5,000,000 or more when the lymph nodes are distinctly swollen, but in some cases the number falls below 3,000,000. The Hb is diminished in all cases, and is usually lower in the earlier stages with slight diminution of red cells than in later stages with marked reduction of red cells. In most cases the leucocytes are normal or diminished in number, with a tendency to relative lymphocytosis. In the more acute cases with fever the leucocytosis may be considerable, but does not pass beyond the limit of inflammatory leucocytosis, 50,000 or 60,000.

We can not leave this subject without giving you a few words on malaria. Of the two kinds of mosquitoes, the culex and the anopheles, the latter is the carrier of the malarial organism. It is now a settled question that the malarial organism is carried from the malarial patient to the healthy individual through the medium of the mosquito by first sucking blood from the former and afterward biting and leaving some of the lymph containing some of the malarial parasites upon the latter. These parasites attack the red blood cells of the blood, and the patient likewise becomes affected with malaria. (As these mosquitoes live in low and marshy places and do their biting only after sunset and before sunrise, the inhabitants in these places may keep free from malaria, if they will remain in mosquito proof houses during the night.) There are few conditions which lead to such extreme destruction of the red cells so rapidly as does acute malarial infection. Such attacks may reduce the red cells in a few weeks time to less than 1,000,000. Such attacks in robust subjects may show a loss of 1,000,000 red cells on the first day and a loss of 2,000,000 during the first four days. In neglected chronic cases of malaria the red cells may be reduced to 2,000,000 or less, and is in danger of leading to pernicious anemia. The Hb is less affected, and the Hb-index may be increased.

There is very little change in the leucocytes, and the absence of leucocytosis with a rapidly arising temperature may be found of much value in the diagnosis of malarial fever. Ewing says: "By far the readiest method of determining the presence of malarial infection is by the examination of the blood." In the southern states, where they have so much malaria, the leading physicians do not pretend to make a diagnosis of malaria without first making a microscopic examination of the blood, unless they are of the simple tertian or quartan type, but if they are of a mixed type or of the estivo-autumnal type a blood examination is necessary. Quinine seems to have a more destructive effect on the malarial parasite in the peripheral blood, so that an examination of the blood after administration of quinine may be negative. If a solution of quinine 1:1500 is mixed with blood under a cover-glass, it is seen that most parasites soon cease their ameboid movements. (Most of the parasites contract and remain motionless, but, according to Monacho and Panichi, the half-grown parasite often leaves the red cell, and are englobed by phagocytes, while the younger and older forms do not emigrate, and may show ameboid movements.) Experience connected with these facts proves the inefficacy of quinine in any other than the apyretic stage. Time and space will not permit a description in detail of the morphological changes in the parasite in this paper, but briefly for instance in the tertian variety, the young parasite enters the red cell. In forty-eight hours this one has developed into twelve to twenty new parasites when division or sporulation takes place, and the malarial organisms are again set free in the blood. It is at this time that the chill and fever takes place, and the only time, while the parasites are still free in the blood and before they enter the red cells that the antiperiodic has any very material effect upon the malarial parasite; and in order to get full effect you must precede the chill and fever with the administration of quinine, 15 grs., about four hours. In the estivo-autumnal type use 5 grs. every hour for four doses, then 5 grs. every four hours.

EXAMINATION OF THE BLOOD.

In making this examination it is best to get specimen of blood to make blood-count, Hb test, and blood smear all at one operation. The finger is commonly recommended as the site for obtaining the blood, but the writer, as do many others, prefers taking it from lobe of ear. First cleanse lobe of ear with soap and water or with a mixture of alcohol and ether and wipe dry. A spear pointed needle or Graefe's narrow cataract knife may be used. Hold lobe of ear firmly between

thumb and finger, and puncture to a depth of one-eighth to one-fourth of an inch. After the puncture do not squeeze only enough to start the flow of blood. As it is important not to use the first few drops in making the blood-count, these can be used for blood-smear and getting per cent. of Hb. The most simple method of getting the per cent. of Hb is that known as the Tallqvist Hemoglobin Scale. The filtering paper is held so that a portion becomes saturated. At this stage of the operation you lay aside the filter paper for a few minutes until you have made blood smear and filled the pipette for the blood-count. By this time the blood stain will have lost its humid gloss. You then compare with scale found in back of book. 90 to 100 is normal.

USE OF THE HEMATOCYTOMETER.

The pipette for the red cells is first used and the blood carefully sucked up to 0.5 mark. Wipe blood from pipette and insert tip in diluting fluid and suck same up to 101 mark. This dilution will be 1:200. If a dilution of 1:100 is wanted you fill pipette with blood to mark 1. Now close the ends of pipette with finger and thumb and agitate so as to mix thoroughly. After blowing out a few drops the next drop is placed upon counting slide. The cover glass is carefully put over the drop. The space between the counting chamber and cover glass is one-tenth milimetre in thickness. Slide and cover glass must be thoroughly clean and dry. The mixture must not be allowed to get over the trench, and there get under the cover glass; if it does, a second drop must be tried. There are various dilution fluids, but the following is the most generally used, and is known as Toisson's solution:

- Rx Methyl violet 5B, .25 grms.
- Sodium chloride, 1.00 grms.
- Sodium sulphate, 8.00 grms.
- Pure glycerine, 30.00 grms.
- Distilled water, 160.00 grms.

This fluid keeps well, stains the leucocytes, and is of high specific gravity, so that the red cells settle slowly. After eight or ten minutes you proceed to make the count. The thickness of the cover glass prevents using a high power objective. A half inch objective with one inch eyepiece is very satisfactory.

In counting the leucocytes, proceed in the same manner to fill the white cell pipette, but for the diluting fluid use a 3 per cent. solution of acetic acid, which makes the red cells invisible. When the pipette is filled to 0.5 mark the dilution is 1:20, and when filled with blood to 1 mark the dilution is 1:10. The counting of leucocytes is sometimes taken from the same preparation as the red; their bluish stain makes it possible to

pick them out readily. It saves time, and with the latest improved counting slides with Turck's or Zappert-Ewing modification, the result is very satisfactory, as it gives nine square milimetres of surface to count over.

In preparing the blood smear two or more slides are necessary. One of these is held between the thumb and finger, and touching the blood with the end of it, is then placed at an acute angle on one of the other slides, and gently drawn lengthwise on same. As many as desired can be made, and allow these to dry in the air.

Our method of staining is that used by Prof. Oertel in the laboratory of the Medical Department of the University of Georgia.

First: Fix blood by immersing four minutes in the following solution:

40 per cent. solution Formaldehyde,
2 to 4 gtt.

95 per cent. alcohol, 3iiss.

Second: Stain for 15 seconds in the following solution:

Eosin, gr. i.

95 per cent. alcohol, 3ij.

Third: Stain in Goldhorn's Polychromic Methylene Blue for one to two minutes. Always wash under hydrant after each stain, and lastly dry in air without blotter, and examine with one-twelfth inch oil-immersion objective. It is in these stained blood smears that you are to look for the malarial parasite, abnormal and characteristic leucocytes and red cells, on which the diagnosis of some diseases depend. It also gives a fair estimate of the Hb by showing more or less of the center of red cells a lighter color.

THERAPEUTIC MEASURES.

The iron of the blood is principally found in the hemoglobin, a compound of albumen and iron containing, in human blood, about 0.42 per cent. of iron. The percentage of iron in normal blood is placed by Limbeck between .056 and .058. Ewing says: "The remarkable effect of this agent upon the blood in suitable cases of anemia is seen in a rapid increase in the number of red cells, and in a later but rather more uniform increase of Hb." A difference is found in the effects of small and of large doses of iron. When small doses are given the red cells outstrip the Hb, but with large doses both increase in equal proportion. It is also found in some cases that the red cells diminish for a few days when beginning the administration of iron, and then begin to increase.

INDICATIONS FOR THE USE OF IRON.

Ewing says: "The specific effect of this drug being centered primarily on the Hb, the chief indications for its use and the best results are ob-

tained in cases of pure chlorosis, with marked loss of Hb and moderate reduction in red cells. In secondary anemia its curative action is less certain. With the appearance of larger cells with normal or increased Hb, the use of iron becomes much less effective, and when the Hb-index is above normal, it seems to be entirely valueless." Improved hygienic and dietetic conditions aid the use of iron very much. The influence of baths, oxygen and massage are powerful adjuncts in the treatment of anemia.

The diminished barometric pressure is a most important factor in altitude, in which we get an increase in size of the peripheral vessels which brings to the surface more blood to be exposed to the sunlight and air; thus increasing oxidation and nutrition. This also shows an increase of red cells, which is in part due to simple concentration of the blood. With this increase of blood to the surface and a greater amount of sunshine in these places to increase the Hb, it gives to the blood a greater power to absorb oxygen. Elevations of 4,000 feet or more are contraindicated in anemic cases with valvular lesions of the heart. Residence at the sea-coast is frequently followed by increase in the number of red cells as a part of improvement in general health.

"While iron is contraindicated by the appearance in the blood of megalocytes (enlarged red cells) with increased Hb, under these circumstances arsenic frequently exerts an almost specific effect in increasing the number of red cells, and in stimulating the production and more uniform distribution of Hb." (Ewing.)

In the simpler forms of anemia, as well as in the severe and chronic forms, the effects of the iron is often accelerated by the combination with arsenic.

Leukemia and pseudoleukemia have received benefit with some apparent cures from the X-ray treatment.

There are a few substances, the so-called "blood-poisons" which tend to destroy the red cells, and when given in lethal doses they destroy life by converting the hemoglobin into met-hemoglobin, a substance which is insoluble in water, giving to the blood a chocolate color, and the red cells proportionately lose their power to discharge carbonic acid and carry oxygen. These substances are chlorate of potash, pyrogalic acid, phosphorous, toad-stools, and the poisons of many infectious diseases.

After hemorrhages the blood is rapidly renewed. The blood constitutes about 7.7 per cent. of the weight of the body, and it is estimated that a hemorrhage in which no more than 3 per cent.

of the weight of the body, or 40 per cent. of total amount of blood, is lost, will not prove fatal; and that the plasma will be renewed in such cases within forty-eight hours, although it may require weeks for the renewal of the red cells. In severe cases, whether the depletion of the blood is due to hemorrhage or other causes, the treatment is the transfusion of salt solution, 7:1000. The rationale of this is stated by Howell to be that in normal blood; the number of red corpuscles is greater than that necessary for a barely sufficient supply of oxygen, and that if after a hemorrhage the quantity of fluid in the vessels is decreased, the circulation is made more rapid, and the remaining corpuscles are made more effective as oxygen carriers; this office is made still more effective by keeping the corpuscles from becoming stagnant in the capillary areas. While the regeneration of the blood is more rapid after the salt infusion, yet this procedure must be regarded as of more value as a means of saving life than as a stimulant to blood formation.

REMARKS ON INTESTINAL SURGERY,
EPILEPSY, TYPHOID PERFORA-
TION, ETC.

HAL C. WYMAN, DETROIT.

The subject which I have been courageous enough to put before you to-day is "Intestinal Surgery," and we realize there are some limitations to intestinal surgery. We realize that the layman criticises our lack of industry in certain directions and that we are indulging ourselves in much talk and little doing. In the vast literature of our art there are "men deeply versed in books, but shallow in themselves." We have a great deal to do to reduce the mortality in intestinal surgery. It is too large, because operations are performed too late. We think frequently of the mechanical effects of shortening the alimentary canal and lessening the amount of surface exposed to intestinal toxins, but we are not likely to shorten it much above the point where the bile ducts and pancreas open. We are ignorant of some features of intestinal anatomy. I do not think I am far out of the way when I say that if a number of us made an autopsy to-day, and were asked to find where the duodenum leaves off and the jejunum begins, I think we would be completely lost. It is not an easy thing to find. There is a good portion of the duodenum that is so deeply seated that we do not always see all of it. It is frequently the seat of ulcerations. The Mayos speak of ulcers of the duodenum. They have done a great deal to draw our attention to that organ.

There is still a great deal of work to do. Not only is it a frequent seat of ulceration (parasitism.) If I may be permitted to discuss a very learned paper on anæmia I should caution against following too closely the quantity of blood cells and their relation to each other, if I expected to cure my patient. If you look into the duodenum in many of those so-called cases of pernicious anemia you will be surprised to find how many times you will find ulcers and the hook worm (*ankylostoma duodenale*). I might say that my attention personally was drawn to this part of the subject by some cases of pernicious anemia in the island of Ceylon. A number of bodies, grave, emaciated and anemic, at the post-mortem showed in the duodenum that it was studded with little ulcer-like surfaces, and a good many of the pernicious anemias are due to that condition. There is in this duodenum at this particular point a marked disposition to stasis. If you will examine a point in the meso-colon where the duodenum passes through it you will find that there are muscular fibers there in considerable numbers, and they induce spasm of outlet of duodenum. Hernias may occur in the retroperitoneal space through the mesocolic opening for the duodenum.

The opening indicated is rich in muscle fibers and frequently is the seat of spasm and I think a great deal of constitutional disturbance grows out of this. Stagnation of the stomach contents may follow along the stagnation of the biliary products and the duodenal contents in consequence of spasm of the outlet of the duodenum, and in some cases this is the cause of epilepsy. The operations which have been performed for these purposes have been successful. In one case of epilepsy operated on a few weeks ago the patient had been suffering from these attacks almost daily. There was a marked region of tenderness over the duodenum, eructations of gas, and indication of the distension of the stomach in consequence of the pyloric obstruction which did not exist. The duodenum was almost as large again as it should be and I had no hesitation in performing the operation I just mentioned.

Spasm exists just as commonly in the duodenum as it may in any other sphincter of the body. Now in criticism of this I understand, of course, that we all know that almost any operation may temporarily do something to the body which arrests the progress of epilepsy, so I would not want to claim that this little procedure should be looked forward to as a surgical panacea for epilepsy, but I do believe that I have had opportunity for reasonable foundation for that as-

sumption that this outlet of the duodenum is not infrequently the seat of obstruction which leads to stagnation and duodenal paresis. Now just beyond this point in the jejunum we have a portion of the bowel which is frequently resorted to for the purpose of cutting short the alimentary canal, gastro-enterostomy. We consequently open this meso-colon and grasp the stomach above and drag it out through like that (demonstration), and then catch up this portion of the jejunum and make a slit in it and so perform a gastro-jejunosomy. You can tell that part of the intestines by the valvular conniventes. Do not select a point for operation too far from the jejunum. The intestinal stream will be continuous between the cavity of the stomach and duodenum, and the closer you get the jejunum up to your stomach the better it would be and consequently you want to be pretty sure you are not too far down the stream. You may perform this operation by the simple process of suture or you may resort to the mechanical devices made for that purpose. Every man should practice on the lower animals until he acquires a practical deftness in the touch. The experienced, I believe, generally are averse to the use of the devices, notwithstanding the great value of the Murphy button. I like the suture best.

I want to just drop that matter for a moment and proceed to another phase of the discussion and that is typhoid fever in its relation to intestinal surgery. If we proceed to a close anatomical study of the disease we find that the typhoid manifestations are in the lower three feet of the small intestines. We find these ulcerations bearing such a relation to the mortality of the typhoid that practically one-fourth of all the deaths are the result of perforation—a direct result of these ulcerative processes. We find that suturing these perforations saves fully one-fourth of all the cases that it embraces. About one-fourth are saved by the endeavors that are made today. In our desire to do something for the man and at the same time to combat a certain pathologic condition of the disease, we put too much study on the chart and not enough on the hand. If you learn to apply the hand in the anatomical sense you learn very soon to pick out the three lower feet of the ileum, and picking that ulcerated area out quickly develop the skill and courage essential to opening that region and increase very much the recoveries in these cases of ulcerations, by surgical means. There are very few men doing this work today, and that is for the reason that the study of typhoid fever today is a study of the chart. You cannot get into surgical touch of

typhoid unless you put your hands in these. I think it is a field well worth while. As to dealing with a case of perforation the patient is extremely mute. A few whiffs of the anæsthetic will change the aspect of it. There is no ground for fear from a reasonable operation under these circumstances. Cases of respiration, in default, with pulse of 140, with tenderness and distension, with hard, sharp pain and the indications of impending collapse will be benefited by this anæsthesia. If there happens to be much escape of the intestinal contents introduce a drain after the closure of the opening, and if you find that Nature has already made some efforts to close up and protect the body against this perforation you need not disturb what Nature has done. If you find intestinal contents escaping lay in a piece of gauze or two and dress. The poison gets out quicker, the ulceration process heals more rapidly, the tension is taken off and the ulcer heals sooner. Frequently the opening is small. You find only a mere spot of lymph and a simple suture of two or three turns around the opening and you have it closed.

Now one thing more. I believe, to emphasize what I have already said, we should lay aside the chart and use it merely as a secondary measure and cultivate the sense of touch in the ulcerated or infected region. The relations of the intestines to some of the infirmities which carry off our little ones—intussusception of the bowels. It is common. You will be astounded how it is covered up and masked. Blood-cells, a little mucus, a little slime, and so quickly following is collapse and the disappearance of the child. If again you bring this sense of touch in play and train your hands to know the contents of the abdomen in the child you will feel a sausage-like lump—you feel something around in there that does not exist on the other side. The gas would not come through the bowel. The physic might have worked a little too much. You will see evidence of an obstruction if your deductions are based on touch. If you find an intussusception there is only one remedy. I believe that you can sometimes work those things loose. If you reverse the child, the head depending, you put your hand well up the abdomen in the search for the continuity of the intestines to feel the point where the ileum joins the caecum, I believe sometimes the manipulation may so change the vermicular movements of the intestine that the intussusception relaxes and the contents of the bowel goes through and the case is on the road to recovery. I believe that if we study in this direction we will find a good many of them. When we find an obstruction I do not think it is

necessary to make much disturbance over the matter. Search the ileo-caecal opening and sigmoid for the conditions I have mentioned. You can bring the point of the intestine close to the point of the intussusception in contact with the loop of intestine just below and you can make a lateral anastomosis by making a slit in each and restoring the intestinal stream. But first of all the intestinal stream must be restored. Sometimes you can follow them out. As a rule the cases that I have met with have been jammed in good and tight. Injection of oil or inversion of the body had been resorted to without avail.

There are other ulcerations affecting the intestines. Tuberculosis does not neglect the intestine, and we not infrequently find it the seat of disease. In dysentery and tuberculosis the colon and small intestines are the seat of ulcerations. There are two ways in which surgery may approach these matters. One is by an incision such as you would make in a case of appendicitis. Cut a hole in the caecum and clean out the contents. By use of your hand work out the contents. Wash out, but not with iodine or silver nitrate or intestinal antiseptics. Let the contents of the bowel run out through this artificial anus. It is a simple, temporary device; it is a surgical working hypothesis. The parts are given rest so that the ulcerative process may heal. Then you may open the abdomen in the middle line in these cases. That is characterized by blood and filthy stools—the chronic diarrhoeas. Old army diarrhoeas are not infrequently tubercular. You may open the median line and run the loops across and you will find tuberculosis. You will recognize a tenderness and change in color. Open in that way and paint with silver nitrate, and suturing the intestine is the other method. Gentlemen, I thank you very much for your attention.

INJURIES OF THE EYE-BALL, WITH REPORT OF CASES.

L. A. ROLLER, GRAND RAPIDS.

My object in presenting this subject to you is the fact that the general practitioner is very frequently called upon to treat these cases and is not always able to call to his aid the assistance of an eye specialist, especially in the smaller towns. While I shall not be able to bring out any new theories or advance any new methods of treatment, I shall endeavor to emphasize certain facts which may be of use to you in dealing with these cases.

The subject of injuries to the eye-ball is such an extensive one and the sources of injury so many, that it would be impossible to go into this

subject in detail, so that I shall confine my remarks more particularly to injuries of the cornea and deeper structures, and such injuries that are more likely to set up sympathetic ophthalmia in the other eye. In the first place, injuries of all descriptions should be carefully examined when first seen, to ascertain their extent and character. These wounds of the cornea may vary in extent from a superficial defect of epithelium to a perforating cut, which traverses the entire thickness of the membrane. Septic infection is very frequent and prolapse of iris or vitreous into the wound are not unfrequent complications, even slight injuries inflicted with unclean instruments, may be followed by a corneal ulcer or by abscess, with danger of sloughing and of pan-ophthalmitis. The cases in which the traumatic agent penetrates into the vitreous, carrying septic matter with it, are especially unfavorable, and generally end in intraocular suppuration.

Wounds of the sclero-corneal margin are dangerous on account of injury to the ciliary body, and because of the frequency of complications with prolapse and consequent sympathetic irritation or inflammation. Injury to the eye with retention of the foreign body is of great importance because of its frequent occurrence and of the severe inflammation which is likely to follow, and of the danger to the other eye, unless scientifically and properly treated; and right here I am reminded of a young man who came to me several years ago with a history of having received an injury to his left eye by the explosion of a bottle containing powder, to which he applied a lighted match while celebrating July 4th. At the time I saw him, Oct. 15th, he could see nothing with the injured eye and with the other could count fingers at one foot.

The injured eye was not painful nor inflamed, and showed a scar the entire length of the cornea. The good eye was red, painful, and vision was gradually failing, and he had all the symptoms of an irido-cyclitis, and still his doctor told him there was no need of him consulting an oculist as he could do as well. The good eye had been paining him for about six weeks when I saw him. I enucleated the injured eye at once, hoping to save what vision remained, and when he left the hospital two weeks later vision had improved sufficiently to enable him to count fingers at ten feet, and later to perform usual manual labor. If this young man's eye had been enucleated earlier, he would, no doubt, have had better vision. Of course, it is proper in many cases to try and save an eye, if you can do so without endangering its fellow, and especially if the patient is under your observation, but as soon as sym-

pathetic trouble has started enucleate at once. You may even then be powerless to stop the loss of the sympathizing eye.

In cases where there is a retention of a foreign body, if the foreign body cannot be removed without sacrificing the eye, I believe the eye should be removed, especially if vision is lost, as it is always a source of anxiety on the part of the patient and physician.

I have recently had a case which gave me a great deal of anxiety and in which I hardly expected to get sympathetic ophthalmia, but did, and which changed my views somewhat in trying to save these badly injured eyes.

The history of this case in brief is as follows: About seven months ago I was called to the hospital to see a young man who had been badly burned by the explosion of an oil can while lighting a fire, by pouring oil out of a can on some live coals.

He had been injured several weeks before I saw him, and the attending physician was looking after his eyes, as well as his other burns. The young man's body, hands, ears and face were badly burned, as was also one eye. At the time I saw him the outer layers of the cornea had sloughed from ulceration and there was pus in the anterior chamber. The other eye was normal. The parents were very much opposed to enucleation, and I thought the eye-ball could be saved without danger to the other eye. I made an incision through the lower part of the cornea, evacuated the pus, washed the eye with bichloride solution, put on bandages, and had the eye dressed twice a day afterwards. In about three weeks, when he went home, the wound and ulceration had all healed, and he had quite a respectable looking eye. There was, however, some slight redness.

We were congratulating ourselves on having saved such a good looking eye. In about six or seven weeks the young man came to my office complaining of the good eye. He said it had been painful for about three or four days. I found the eye red, painful, vision defective, and quite marked photo-phobia. I advised enucleating the diseased eye at once, in hopes of arresting the mischief in the good eye.

After some little delay the parents gave their consent and the eye was enucleated. This did not seem to arrest the progress of the disease, but by the use of hot applications, calomel and atropine, the vision now with correction is 20/50.

CASE 1.—May 21, 1898, Mr. R. L., of Nunica, a farmer by occupation, consulted me for failing vision in his right eye. He gave the following history: Five or six months previous while cut-

ting brush he was struck in the eye by a limb of a thorn-apple tree.

The eye was painful and inflamed for a number of days, he did not remember just how long. After the inflammation had subsided he noticed that the sight was nearly gone in that eye. The vision in the right eye was all right until three weeks before he consulted me. He then noticed that the vision in this eye was failing, the eye watered and was weak, very little pain and slight redness. At the time he consulted me vision in the left eye—counted fingers at two feet. Vision in the right eye 20/50.

No improvement with glasses. Ophthalmoscopic examination of the left or injured eye showed on upper portion of the lens or lens capsule a dark pointed object about 1/16 to 1/8 inch in length, which taken from the history of the case I judged to be the point of a thorn, which had broken off in the eye, media hazy, though lens seemed clear.

I gave the patient my opinion and advised him to consult another oculist.

He then saw Dr. Welsh, who concurred in my diagnosis. I explained to the patient that the foreign body in the left eye was setting up sympathetic irritation in the right eye, and that if we could remove the foreign substance we could probably retain what vision was left in the right eye, and that it might come back to normal. I also told him that if we failed to remove the substance it might be necessary to remove the injured eye.

He said he was perfectly willing to do what I thought best, if he could save the one eye.

He was taken to the hospital, the eye prepared in the usual way, and with the assistance of Dr. Welsh I made an incision in the cornea and with a pair of fine tooth forceps attempted to grasp the foreign body. As it was impossible to see the object without the ophthalmoscope, I soon found that it was impossible to remove it in this way. I then enlarged my incision and removed the lens, which was soft, but did not see the piece of thorn.

The eye was then thoroughly washed with antiseptics, bandages applied and the patient put to bed. I concluded not to enucleate at this time but wait developments. There was considerable reaction and the patient remained at the hospital about three weeks; at this time the eye was improved sufficiently so that the patient came to my office for treatment. After he had been coming to my office for a few days I noticed this dark object near the entrance of the corneal incision. It had become caught near the incision. I reopened my former incision and with the for-

ceps grasped the substance, which proved to be the point of the thorn, about one-sixteenth of an inch, and gave it to the patient, who expressed a desire to preserve it. After its removal the eye improved rapidly, and vision in the right eye became normal.

I saw him nearly a year afterwards and he had no further trouble.

CASE 2.—Dec. 24, 1891, Mr. G. L. K., a laborer in the employ of the Valley City Ice Co., came to my office with an extensive lacerated wound of the cornea. In attempting to catch hold of a block of ice, his ice-thongs slipped and the point of the thong pierced the eye-ball, cutting through the lower fifth of the cornea and extending through the ciliary region on both sides. There was a prolapse of iris and the eye was collapsed. I hesitated whether to enucleate or make an attempt to save the eye. I concluded to do the latter. The eye was thoroughly washed with antiseptics, the prolapsed iris snipped off and with two or three fine stitches the wound was closed. Bandages were applied and the patient sent home, with directions to apply ice cloths. There was a low form of irido-cyclitis, but so slight that the patient suffered but very little pain and went to work in about six or seven weeks, the eye being well. He is now at work for the Consumers' Ice Co., and has a good looking eye with an almost imperceptible scar, of course; the pupil is large, as so much of the iris was removed.

He has only light perception, but the eye is much better than an artificial one. I gave him instructions that if the other eye ever showed any signs of sympathetic irritation, he must consult an oculist at once.

CASE 3.—Sept. 12, 1900, C. W. O., a laborer of the Halladay Lumber Co., came to my office complaining that about an hour before, while at his work, he had been struck in the right eye by a block of wood about one and one-half inches long, which struck the saw and flew back about four feet, striking him on the upper lid, and that he was only able to see light. Upon examination I found the anterior chamber filled with blood and the iris torn loose at the upper ciliary margin, a little to the nasal side. The separation was about one-eighth of an inch. Atropine was instilled in the eye and he was directed to apply ice compresses. The atropine being used so soon after the injury had the effect of drawing the iris back into place, and the pupil kept well dilated until reattachment had occurred. The blood absorbed in a few days and vision returned to normal. This case is interesting as reattachments of the iris to the ciliary body rarely occur.

I have had several cases of iridodialysis and

this is the only one in which reattachmen has occurred. In this case separation was not great. Berry mentions such a favorable result from the records of the Dublin Eye Hospital. Gruening also mentions a favorable result at Mount Sinai Hospital.

The question as to whether it is best to try and save a badly injured eye or enucleate at once, is often a trying one.

The patient, as well as his friends, are very much opposed to having an eye removed, if it is possible to save it, even though it may not look as well as an artificial one, and a physician often yields to their pleadings—contrary to his better judgment.

Enucleation of the injured eye is the only remedy for sympathetic ophthalmia, and is reliable only as a prophylactic measure before the other eye is involved.

In all cases of severe injury with or without retention of a foreign body, our treatment should be guided by the cardinal principle of preserving as long as possible, first the function of the eye; second, its form; and of deferring enucleation until we are obliged to remove the globe on account of progressive inflammation, or danger of sympathetic ophthalmia.

The indication for enucleation is not always clear, but I think we can judge a good deal from the condition of the injured eye. Sympathetic inflammation does not usually develop unless we have a picture of irido-cyclitis, or an infection of the deeper structure of the eye. If the iritis is progressive, eye-ball painful, sight rapidly diminishing vitreous hazy and fundus indistinct, I urge enucleation. If the injured eye is blind and not yet free from irritation when sympathetic ophthalmia affects the other, we should enucleate the former, for it is conceivable that the injured eye, as it did at first, may continue to induce a morbid process in the other.

Penetrating wounds are as a rule the kind of injuries which give rise to this disease. Such wounds are nearly always associated with loss of aqueous or vitreous and with intra-ocular hemorrhages. A very common and dangerous site, for an injury, is the ciliary region.

Mackenzie thinks that the disease is more apt to be excited if the wound has produced a protrusion of the iris and such a cicatrix of the cornea and sclera, as keeps the portion of the iris which had not protruded perpetually on the stretch.

I believe in conservative surgery about the eye, as well as other parts of the body, and have saved eyes that were badly injured. But I have come to the conclusion that it is better to remove

an eye at once, that is severely injured, than to run risk of sympathetic disease in the other eye. While sympathetic disease is not frequent, you never know when it is going to occur, and when you have seen a few patients go nearly blind because of a retained injured eye, you feel as if the only means of safety and security lies in an early removal of the offending organ.

If sympathetic inflammation has actually arisen, enucleation will not always check the destructive process; so the only safe plan, it seems to me, is to advise operative procedure, in these cases, and if it is refused either give up the case or let the patient stand the responsibility.

REPORT OF CASE OF INJURY TO BRACHIAL PLEXUS DURING OPERATION FOR CANCER OF BREAST.

F. R. BLANCHARD, LAKEVIEW.

Mr. President and Gentlemen of the Society—My object in reporting this case is not so much to show what a blunder I made in operating as to relate the wonderful efforts of Nature to repair the damage. On April 2d, 1904, I was called to see Mrs. S. I found her walking the floor, suffering intense pain. Without waiting to get a history of the case I administered $\frac{1}{8}$ grain morphine, hypodermically, and in about one-half hour the patient, being comfortable, I obtained the following facts: Patient 48 years of age. About Christmas, 1903, she noticed a lump under the skin between the left breast and axilla; it was very hard and painful to the touch. In a few weeks two more lumps appeared in the axilla. All three growths gradually increased in size, and at times were very painful. The severe pain which she was suffering upon my arrival was in this region. Patient's family history good. Personal history: Patient had always been well, and had worked very hard, weaving carpet, besides doing the housework for the family; had four children, the youngest 10 years of age; a number of miscarriages, which had been produced. Upon examination I found a hard growth about size of hickory nut midway between the upper edge of the breast and the axilla; also two about same size in the axilla, which seemed to be coalescing. I thought of cancer and advised immediate operation; ordered a nurse from Grand Rapids. Patient was prepared in usual way and I operated April 13th. The breast seemed to be normal, but fearing that the source of infection might be there I removed it, together with the axillary glands. The patient took the anæsthetic badly, chloroform being used, and I had to operate very rapidly. She made a very rapid recovery and, in four weeks, was doing her own housework, and

contrary to my orders again weaving carpet. The growths which I removed were sent to a pathologist for examination, who pronounced them secondary carcinoma. Then the question arose, where was the primary infection? The patient continued exceptionally well for five months, when she came to my office, and upon examination I found a new growth about two inches below the axilla the size of a pea. This I removed with a local anæsthetic Sept. 19. Patient was again very well until December, when she called again, and I found a large growth in the axilla. At this time I considered the case hopeless, but she was so anxious to do something that much against my will I consented to do the radical operation. Consequently I did so Dec. 17, just eight months after the first. I intended to use ether as an anæsthetic, but as I found considerable albumin in the urine, concluded to again trust chloroform. The patient was anæsthetized and I had made one sweep with the knife when she stopped breathing. I waited a moment, when, seeing that she was going to collapse, I dropped everything and begun Ochsner's method of resuscitating, viz., forcible compression of chest, followed by relaxing. I instructed the nurse to break a pearl of amyl nitrite on some gauze and hold to her mouth, for as I forcibly compressed the thorax and then relaxed I could hear air enter; this she did and patient soon rallied. I then very quickly removed both pectoralis major and minor muscles, together with a portion of the longissimus dorsi, a large area of skin and all the subcutaneous fat. I then opened the deep fascia in the axilla and found three tumors, the largest the size of a butternut, the other two somewhat smaller. The largest one seemed to be adherent to the axillary vein. At this point patient was doing badly and I was working very rapidly. In separating the growth I either wounded the main trunk of the vein or a large branch close to it, for a frightful hemorrhage ensued. I picked up an eight-inch compression forcep and in clamping it included the axillary artery in the bight. It seemed then as if hemorrhage started up everywhere, but a second forcep controlled it. My opinion as to what was best to do was formed in an instant. I remembered that a short time previous when I had operated for varicocele, that I had tied off the veins and left the artery intact, and for five days was so frightened that my hair stood on end, thinking the scrotum, testicle and penis were all becoming gangrenous. So in this case, with an aneurysm needle, armed with No. 4 catgut, I put two ligatures about one inch apart around both vein and artery, and then closed the wound.

Afterward, in looking up authorities to substantiate my theory, I found that Prof. Agrew, in operating for popliteal aneurism by ligating the femoral artery, accidentally wounded the femoral vein. The venous hemorrhage was profuse, but stopped immediately on tightening the ligature on the artery and did not afterward return.

Professor Langenbeck recommends that where a large vein is wounded and bleeding, the accompanying artery be tied as well as the injured vein. He believes that when both artery and vein are tied, not only does gangrene not occur, but there is less disturbance to the capillary circulation than when either is tied alone. He states that, by simultaneous ligation of both artery and vein, an equilibrium is maintained between the arteries and veins until a collateral circulation is established.

Professor Grillo, of Naples, reports 15 cases in which both femoral artery and vein were tied for aneurism—all were successful. While in 14 cases where the artery was tied alone there were two deaths from secondary hemorrhage.

After the patient was put to bed and had begun to rally she began to suffer intense pain in the arms, and I then realized what I had done—I had ligated the artery and vein without raising them, and had included in the ligature the median and ulnar nerves. I would have opened the wound and released the nerves, but expected the patient to die, so did not dare undertake it. The pain was controlled by morphine, hypodermically. In the morning, as the patient showed symptoms of rallying, I called up Dr. Richard Smith, and asked his advice. He advised retting it alone. The growth was malignant and would return. The paralysis of the arm was a secondary consideration. For three or four days the patient suffered severe pain, there was pricking sensations, and a feeling as if there were another hand. And, of course, paralysis both of motion and sensation. It was rather difficult to keep the arm and hand warm. Wishing for more authority on the subject I wrote Drs. W. J. Herdman, of Ann Arbor, and Hugh T. Patrick, of Chicago. Here is what they say:

January 10, 1905.

Dear Dr. Blanchard—I was much interested to learn the result in the case of Lena Sorenson. Evidently the trouble had progressed to such a degree when Patrick saw her that the exostosis could be much more readily detected at the time he saw her than when she was here. The neuritis was evident enough, but I doubt if an X-ray at that time would have made it plain that the spicular bone was the cause of the neuritis. I

am very glad that she has made such a very good recovery.

As to the other matter that your letter contained, the result alone will determine whether the nerve is so far injured as to result in its degeneration. It is not of necessity destroyed. The motor nerve may degenerate from the seat of ligature to the periphery and the sensory filaments will degenerate in their peripheral portions and also to some extent centrally perhaps; but when a healthy nerve is ligated in that way it will in all probability renew itself, so that I think you have reason to expect only a temporary paralysis. The renewal may take some months and should be assisted by massage and electric stimulus after the wound has entirely healed. With these precautions permanent disability is not likely to result.

It is an interesting condition and I would be glad to take a look at it some time.

Very truly yours,

W. J. HERDMAN.

December 30, 1904.

My Dear Doctor Blanchard—I am very much pleased to write you regarding Lena Sorenson, who was sent to me by Dr. William E. Morgan, of this city. Either she forgot that you had sent her to me, or chose not to mention it, or I have forgotten that she did mention it. Luckily, I hit the diagnosis correctly at my first examination. The case was one of cervical rib, a very rare condition even as an anatomical anomaly, and rarer still as the cause of nervous symptoms. An X-ray picture at once showed the diagnosis to be correct, and Dr. Morgan removed the rib. I hope that she will make a good recovery, but to hasten this much to be desired end she should receive proper electric treatments.

Unfortunately, before Miss Sorenson left she and I had a slight difference, and I fear that she hesitates to write me concerning further treatment. I told her that I should be glad to write to her home physician regarding the electric treatments.

Concerning your second case, I cannot speak with as much positiveness as I should desire, because I have never had just that particular thing to deal with. However, I would advise you to be upon the safe side, open up your wound and remove the ligatures. Should the catgut be very slow in absorbing, as is sometimes the case, you might have a permanent disability. In any event it is not a very serious operation to go in and take out your ligatures, and the patient is then in a position to make the most rapid recovery possible.

Very sincerely yours,

HUGH T. PATRICK.

I concluded, however, not to submit the patient to the danger of again taking an anæsthetic, and left the matter in the hands of Nature.

In looking up the matter of ligation of nerves I find the following:

Ochsner, in his latest work on surgery, says in regard to nerve suturing:

Researches upon this point have determined that small nerve branches are almost severed by the ligature; in the case of larger branches the constriction never immediately interrupts the continuity of the nerve, on account of the resistance of the neurilemma, but the transmission of impressions does not take place. If a nerve has been tied at the same time as an artery, possessing thick walls, by immediately removing the ligature the integrity of a certain number of nerve fibers may be counted upon. The anatomical changes which follow ligation are well described by Descot. There occurs a plastic infiltration above, below and around the ligature; the ends of the nerve are maintained in exact opposition by the thickening of the surrounding cellular tissue.

Waller discovered that after the continuity of a nerve is destroyed the peripheral end degenerates, but the degenerated segment is not destroyed, and after a time there takes place a true work of regeneration. He considered this work of regeneration to be the result of a kind of budding of the nerve fibers remaining in connection with the axis cylinder, the parts of the nerve separated from the nerve center not taking any part in the process. The fibers of new formation traversing the cicatrix in order to reach the peripheral end, where they are developed either in the interior of the old sheaths of Schwann or in their interstices.

In cases in which the ends cannot be adjusted absolutely without tension the distance between the nerve ends should be bridged over with fine catgut sutures, passing them back and forth between the divided extremities, each time passing through the end at a little distance from the previous point of perforation until a bundle of catgut has been produced approximately the size of the nerve being sutured. This should be applied so that there is no tension upon the sutures, which should lie loose between the nerve ends. When a sufficient amount has been arranged, the ends are tied and the entire bundle of catgut, with the nerve ends, are covered by reflecting a flap of fascia over them and attaching them to some of the soft tissues. By this method I have secured perfect functional results in a case where as much as three inches of the ulnar nerve had been destroyed.

In about four weeks the patient had so far recovered that she was doing her own housework, carrying the paralyzed arm, which she nicknamed "gamy," in a sling. I advised her to have it thoroughly rubbed or massaged every day and I called once a week and used the electric battery, assuring her that in time the use of the arm would be restored. In May, 1905, I noticed that the lymphatics in the neck were becoming enlarged, and the patient was very much worried. She concluded then that she would try the X-ray. Accordingly, she went to a neighboring town and began its use. After taking four or five treatments she came home with a very bad burn. The skin over the entire side of the chest and neck sloughed off and the burn seemed to penetrate deep into the tissues. She had chills every day; temperature 103. Auscultation showed the left lung almost completely solidified. Dr. Richard Smith being in town, I called him in to see the case. He concluded that there were metastases in the lung and that she would soon succumb. Contrary to our expectations, however, she rallied, the lung cleared up and patient was again quite well. Some time after this, however, probably in July, the arm began to swell. A hard growth could be felt just below the liver, and patient began to develop symptoms of cancer of stomach. From that time she continued to fail until her death, Sept. 17, about two years from the time of the appearance of the first growth near the left breast. About one month before her death, and eight months from the time of the operation, I discovered that sensation in the arm had returned and was normal, and that, notwithstanding the enormous swelling, the patient was able to bend the elbow and to flex and extend the fingers.

I regret very much that this patient could not have lived a few months longer, as I feel certain that the function of the nerves would have been fully restored.

CONTUSION OF THE HIP JOINT.

GEO. S. WILLIAMS, MUSKEGON.

Gentlemen—It is my purpose in this brief paper to simply call your attention to an injury of the hip joint which may appropriately be called contusion of the joint. This condition is but little spoken of in surgical literature, and that under the head of synovitis of the hip joint. The "Reference Hand Book" has the following: "Synovitis of the hip joint from traumatism may occur in sprains and contusions. The extent and course of such synovitis depends upon the nature and amount of the injury. In patients with tubercular predispositions, such injuries may pro-

duce tubercular disease. In certain cases a synovitis of this sort passes away without permanent injury; in other cases permanent disease or ankylosis remain."

In the four cases which have come under my observation, a marked similarity in nature of injury and course of disease has obtained. All four cases were injured by a fall, striking upon the great trochanter, thus forcing the head of the femur into the socket with about the same amount of contusion or injury to the joint surfaces, as evidenced by the symptoms, course of disease, and recovery. I believe this injury to the joint most liable to occur when the body has reached its mature weight and the joint its greatest resistance.

Women are more likely to sustain this injury than men, for the reason that they make less effort to save themselves in falling. In childhood this injury may excite hip joint disease.

The anatomy of this joint is well known to you all—the most perfect ball and socket joint in the body—its construction permitting a liberal degree of motion in all directions sustaining the superimposed body at the same time. Again, you know how difficult of palpation this joint is rendered by reason of its covering of soft tissues, and how hard it is to arrive at any accurate conclusions as to the condition within the capsule of the joint.

Pathology.—I believe we have a low type of non-destructive inflammation in and about the joint, involving its entire synovia. A variable amount of effusion may be thrown out. Later, adhesions may form, which restrict the motion of the joint. Muscular wasting of the affected side is soon observed.

Diagnosis.—In arriving at a conclusion in this affection, we must look diligently for any of the more serious injuries of this joint liable to be present as the result of an accident or trauma. By this means we shall eliminate all forms of fracture and dislocation. To distinguish between contusion of the joint and hysterical joint affections, which so closely resemble each other, we should keep in mind the fact that in the latter there may be no history of a fall or injury to the joint. Yet, this is not always true, as the trouble sometimes begins in this manner. Again, there is no rise of temperature in the latter, the pain, which resembles closely all injuries of the joint, is not so severe at night in the hysterical type. There is little or no wasting of the muscles in the last named trouble. In short, contusion of the joint is an inflammatory affection, and hysterical joint is not.

When there is doubt regarding the diagnosis

an X-ray picture or skiagraph may be taken of the joint, provided it is accessible. It is, however, only useful when a fracture is suspected. Another valuable aid in diagnosis is to make an examination of the injured joint while the patient is completely anesthetized. I am so impressed with the necessity of such a course that I would say that, without its employment, a correct diagnosis is very doubtful.

Prognosis.—Perfect recovery is the rule.

Symptoms.—Lameness, pain in the joint or its immediate region, no shortening, inability to bear the weight of the body on the affected side, no malposition of the thigh and leg; but a tendency to flex the thigh slightly.

There is traumatic fever accompanying the first few weeks of the malady. In my cases there were no external signs of a contusion at any time. Palpation gave no evidence of effusion or other injury, save tenderness and sensitiveness on pressure.

Treatment.—Rest is the essential factor of treatment in this affection. The patient must be put in bed and kept there until motion in the joint can be made without causing pain. A crutch splint may be necessary to hold the limb quiet. If extension seems to lessen the pain a weight and pulley should be applied. Pain must be relieved with opiates when very severe. Hot fomentations may do much to relieve the earlier symptoms, and blisters may also be useful. When passive motions can be made without causing pain in the joint, the patient may be allowed to sit up, get about on crutches, and the joint put to slight use when no pain or soreness is felt.

A brief history of the four cases which form the basis of this paper may be interesting. All were women, ages ranging from 17 to 35 years, showing the period of adult life in which this injury is most likely to occur.

CASE No. 1.—Mrs. B., married, age 35 years, healthy, family history good. Walked off the sidewalk into a stairway leading to a basement, landing on the right side on the sandy bottom of the cellar. Patient was removed to her home, and found to have sustained a contusion of the right hip joint; recovered in six months.

CASE No. 2.—Mrs. C., age 32, married, healthy, family history good. Was thrown from a cutter to the pavement, striking on the left side, sustaining the same injury to the left joint. This patient was very nervous at all times, but made a complete recovery in six months.

CASE No. 3.—Mrs. Mc., age 26, married, strong and healthy, family history negative. Was thrown from a carriage, striking on the turf by the side of the street, on the right side, producing a simi-

lar result in the right joint; recovery in about six months.

CASE No. 4.—Miss S., age 17 years, strong and healthy, family history good. This patient was thrown from her wheel upon a pile of sand, striking on her right side. After some moments she managed to mount her wheel and ride home, using the left foot on the peddle. The next day I was called and found a contusion of the right hip joint. No dressing was applied, as she seemed to remain perfectly quiet. The pain was very severe always, and worse at night. Her temperature ranged from 99° to 101° during the next four weeks. After three months in bed this patient was able to be about on crutches, which she continued to use for nearly a year. This long use of crutches is explained by the fact that her guardian brought suit against the city for personal damages due to negligence.

About fifteen months after the accident, and just before the trial, this patient was examined by the city physician, Dr. Jacob Oosting, and myself, to determine if there was still any remaining evidence of the injury to the joint. Our examination was made under complete anesthesia, with the following result: both limbs could be extended and were of same length, left thigh could be flexed so that the knee met the chest; on the injured, or right side, the thigh could only be flexed to right angle with the body. If carried further the pelvis moved with it, showing that the joint was restricted in its motion by adhesions. There was no roughness within the joint. I think this case would have gotten well in six or eight months had it not fallen into a legal rut.

In conclusion, I wish to say that "contusion of the hip joint" seems to me a proper name for a serious injury to the hip joint, requiring early recognition and proper management for the best interest of the patient, the mental relief of their friends, and the credit of the physician in charge of the case.

INGHAM COUNTY.

The Ingham County Medical Society held its fourth annual meeting on Nov. 16th, 1905, at the residence of Dr. L. Anna Ballard, Lansing. The following doctors were present: A. E. Bulson, District Councilor, Jackson, and Doctors Campbell, A. D. Hagadorn, J. W. Hagadorn, Toles, Wade, Jones, Black, Brucher, Miller, Hage, Alexander, Jenkins, Rulson, Tyler, Osborn, Dunning, Barber, Cora Ganney, Gertrude Campbell, May Wetinox, and L. Anna Ballard. With the wives of the doctors there were forty-five present. President Campbell gave an able and interesting

address on "Tuberculosis and Its Treatment." Councilor Bulson gave an enthusiastic talk. Officers were elected as follows:

President—J. W. Hagadorn, Lansing.

Vice-President—G. B. Wade, Laingsburg.

Secretary-Treasurer—L. Anna Ballard, Lansing.
L. ANNA BALLARD, Sec'y.

TUBERCULOSIS AND ITS TREATMENT.

J. F. CAMPBELL, LANSING.

I wish to place before the society a few facts about a common and fatal disease. So common that we are apt to treat it with indifference, as we do all common things. The time nor place will not allow a complete discussion of all the phases of this interesting and important subject.

That tuberculosis is contagious is now an admitted scientific fact. The communicability of tuberculosis is a doctrine dating as far backward as the history of medicine extends. Eminent physicians in every age have held that the disease may be communicated under circumstances which involve close proximity, as from husband to wife, wife to husband, brother to sister, sister to brother, mother to child, patient to nurse, etc. The father of medicine taught that tuberculosis was a disease most difficult to treat and most fatal to the greatest number. Its contagiousness was recognized by medical men during the middle ages, and as long ago as 1865 it was proven by experiments on animals that tuberculosis could be transmitted from one individual to another.

If tuberculosis is a contagious disease it is preventable. The prevention of the spread of the disease resolves itself into the complete destruction of the sputum of the afflicted, which (the sputum) retains its poison for a long time. Outside of the body the germs are most often found in the dust of rooms occupied by the sick, and it has been often demonstrated that dust from hospitals, prisons, hotel bedrooms, private houses, etc., where the sick with this disease have been, is capable of causing the disease in the lower animals.

The dust may retain its power of producing tuberculosis for months. In ordinary breathing the air expired is free from germs. When talking, however, there is an unseen spray ejected from the mouth, which contains the germs. This is more apt to be the case in forcible talking, hawking, spitting, and good authorities say this spray is a greater source of danger than the dry sputum.

The germ grows slowly outside of the body. The light of the sun quickly destroys it. It will not live long in a perfectly dry state. It must have moisture, like other plant life. But in

dark, moist places it may live for days. It enters the body in a number of ways. It may be in the air we breathe, and enter the lungs directly, or it lodges in the tonsils and is carried to different parts of the body by the lymph channels. It may be swallowed. It may gain access to the body through a scratch on the skin. In a large majority of cases it attacks the lungs, producing softening and breaking down of lung tissue. The patient coughs and expectorates and casts out millions of these germs; as many as one hundred million to sixteen drops of sputum. As long as the sputum is moist the germs are harmless. When it dries they are set free and mingle with the dust. When the dust is stirred up, as in sweeping, the air becomes filled with the germs. When the air is still, they settle to the floor. Children, creeping about the floor, and putting fingers and objects in their mouths, swallow them, and in this way contract tuberculosis. Flies settle on the sputum and carry germs to be deposited upon the food we eat or in what we drink. When the sick expectorate on the sidewalk the germs mingle with the dust and are blown everywhere. The undried sputum on the sidewalk may contaminate a lady's long trailing skirt and be carried to the home and then set free to poison her family. The germ is found only in the sputum. Let this be promptly cared for and the victim may mingle with the public. The most important question for doctors today is the prevention and entire wiping out of tuberculosis, but I do not believe the measures for the prevention of this disease can ever be enforced until the people in general, and especially those who have the disease, or are associated with those who have it, become properly educated on this subject, and *educated* (not alarmed) in a rational way. And for the purpose of this being pulsory notification of every case of tuberculosis. If good is to be brought about it is by giving the people knowledge of this disease that they will know perfectly wherein the danger lies. It should be impressed upon them that this is principally in one direction, viz., the sputum. It should be constantly kept in the minds of the people that it is the sputum and the sputum alone that is the chief cause in the spread of tuberculosis. Tuberculosis is not hereditary. To inherit consumption it would be necessary for the germ to be transmitted from parent to child, and we know that this practically never happens. It, heredity, is simply a predisposing cause like alcoholism, bad air, bad ventilation, bad surroundings, catching cold, and certain diseases like measles and whooping-cough, these prepare in the

system a suitable soil for the propagation and growth of the specific germ.

Tuberculosis is also curable, or at least recoverable, and yet it is the most prevalent and most fatal disease known at the present time. One-sixth of all deaths, and one-third of all deaths between the ages of 15 and 45 are due to this disease. In Michigan about 3,500 deaths occur from this disease yearly. The death rate in Michigan is greater than that from diphtheria, croup, scarlet fever, measles, cerebro-spinal meningitis, typhoid fever and small-pox combined. According to the best authority, the annual tribute of the United States to this scourge is upward of 150,000 of its people. Each year the world gives up 1,100,000, each day 3,000, each minute two of its people to this plague. Four hundred homes of this country today are mourning for their loved ones. A mere repetition of yesterday's sorrows, and the angel of death is hastening to the 400 marked for tomorrow.

The money loss to the State of Michigan is enormous. The loss from inability to work on the part of those sick, the care of the sick and helpless, and other losses, would reach the sum of \$15,000,000, and the loss resulting in the United States from this disease, a great proportion of which is needless and preventable, is estimated at \$240,000,000 a year. These incomprehensible figures are not overestimated. This estimate does not take into account the social and sentimental value of 150,000 lives which under different conditions might hope to live for many years.

Consumption is curable. It is not cured by patent medicines, quack doctors, or secret remedies. The doctor who relies on cod-liver oil, whiskey and change of climate will never cure a case—but it is curable by the scientific use of fresh air, sunlight, rest, pure water, bathing, proper clothing, plenty of good, pure food, as milk, eggs, beefsteak, butter, fruit, etc., etc. Consumption can be cured in any climate. No special climatic advantages of air are claimed for the hospitals in New York, Massachusetts, Pennsylvania, Connecticut and other states in which tuberculosis is treated so successfully. Dr. Flick, of Philadelphia, director of the Phipps Institute, says: "Tuberculosis can be successfully treated anywhere. Climate has practically nothing to do with the matter. Formerly climate was looked upon as the most important factor in the production of tuberculosis, consequently it was looked upon as the most important factor in the treatment."

Dr. Cornet, of Berlin, an authority of world-wide reputation, says: "Today we rightly regard

no one climate as specific. It occurs in the warmth of the south as well as in the colder north. Recoveries are seen in all climates."

According to the mortality reports of the twelfth United States census, the decrease in the death rate per 100,000, which was in 1890 254.4 per 100,000, in 1900 was 190.5 per 100,000. This decrease was brought about by the modern methods of prevention and scientific ways of treatment of this disease.

From the years 1898 to 1902 the death rate in Michigan has decreased from 112 per one hundred thousand to 86 per one hundred thousand. One-half of this decrease in Michigan has taken place during the last five years, during which time the State Board of Health has been conducting a special effort of education against the disease. If to the measures already introduced could be added other measures for the prevention of this disease which sanitarians have evolved, it is asserted that in our generation consumption would be eliminated as a cause of death in Michigan.

Now, "the pearl of great price—the one thing needful," and the most important measures to be brought about for the prevention and cure of consumption is the establishment by the State of hospitals for the indigent cases of the disease, these to be in control of competent physicians, who will in every way look after the welfare of those sick therein. Statistics from the various hospitals or sanatoriums in this country and in Europe go to show that from fifty to eighty per cent. of those sick in the early stage of this disease are cured in these institutions.

The committee of the State Medical Society secured from the legislature last winter an appropriation of \$30,000, of which \$20,000 is to be used the first year for a building, and maintaining it, and the remaining \$10,000 is intended only for the maintaining during the second year. This project of the profession of the State to provide a sanatorium for the dependent class suffering with tuberculosis has been assisted by Governor Warner by the appointment of a Board of Trustees. The trustees are now ready to proceed with the founding of the institution as far as the limited sum permits. In the year 1903 the various townships, villages, cities and counties of the State spent \$143,156 for the care of indigent persons sick with small-pox, which is the least important of the diseases which endanger the public health, and only \$1,347 for the care of those sick with consumption, the most important of the diseases which endanger the public health. Is this fair play? Is this a square deal? Why should we or the State take care of one class of patients

sick with a contagious disease, and neglect another class?

If our community is visited with a contagious disease, small-pox, for instance, the people go crazy, the health officer is at once notified, the community is shut out, the patient is shut in or hurried away to the contagious hospital, and there he is furnished with a nurse at two or three dollars a day, his grocery bills are paid, all his daily needs and wants are supplied, a doctor is sent to look after him and he peeps through the window at him and is paid by the county \$5 to \$10 a visit, and the patient gets well.

How do we treat a patient with consumption? Usually with indifference. The friends prescribe cod-liver oil, which the patient cannot digest, and the physician cod-liver oil and whiskey, and the patient dies.

We, as intelligent men and women, should install a campaign of education in favor of this neglected, suffering class. It is in our hands as promoters and conservers of the public health to correct this prevailing wrong.

Why should we sit unconcerned while our community and State are invaded by a preventable and curable disease?

Why should we pillow our heads on the bosom of indifference while our fellow men are neglected and left dying by our sides?

JACKSON COUNTY.

The Jackson County Medical Society held its fifth annual meeting at Jackson City Hospital Dec. 7th, 1905. Dr. C. H. Lewis, President, gave an address on "The Building of a Physician." The following officers were elected for 1906:

President—Dr. A. J. Roberts.

Vice-President—Dr. J. C. Kugler.

Secretary—Dr. R. Grace Hendrick.

Treasurer—Dr. F. W. Rogers.

Delegate—Dr. C. H. Lewis.

Alternate Delegate—Dr. N. H. Williams.

The rest of the time was devoted to clinics.

Dr. Robinson presented a case of varicose veins. Mr. M., age 52. Family and personal history negative. Trouble dates back six months, when veins of left leg began to enlarge. A swelling at inner side of knee was particularly tender and troublesome; whole leg oedematous and eczema and pigmentation at lower and outer side.

Dr. Robinson reviewed causes briefly: due to some interference to circulation through the vein; to heart lesion; to tumors (but this not sufficient, as some tumors, the largest and most troublesome, will not cause dilated veins); acitis;

pregnancy; phlebitis, with lessening of resistance of middle and muscular coats and consequent dilatation, causing incompetency of valves.

Trendelenburg sign useful here: elevate the limb, thus freeing it of blood. Then placing the thumb on the saphenous vein, high up; the patient is allowed to stand, when the vein will fill slowly and imperfectly from below. Then if finger is removed the blood will rush down into the vein rapidly.

Complications varied: Phlebitis, thrombosis, thrombo-phlebitis, with infection and suppuration; clots may be broken and produce emboli; may have rupture of vein, whose wall is weakened and fatal hemorrhage; ulcer and eczema.

Treatment: palliative and radical. Of the former, rest in bed with leg in elevated position. Bandaging. Prefer radical treatment. Patient did not wish to take chloroform. Was given a hypodermic of scopolamine 1-100 gr. and morphine 1-6 gr. Dr. Robinson spoke of the different operations devised for this purpose: Slude, Trendelenburg. In this case two inches of the long saphenous vein was removed from the upper part of the lower third of the thigh, and two inches of vein from below the knee. Patient said he felt no pain during the procedure.

Dr. Taylor then demonstrated Kelly's method of curettement, used in cases of muco-purulent discharge. Many cases curetted repeatedly by the old method are finally cured at Johns Hopkins by this procedure. Kelly uses a corrugated curette, corrugated on both sides, perfectly safe, even in hands of a novice, for dull, but clears uterine cavity and cervical canal perfectly. At Johns Hopkins they sometimes administer gas for the operation, as their skill is such as to require only 10 minutes for the work. Cauterize the cervical canal after curetting.

Dr. Taylor operated on two cases.

First Case.—Mrs. A., age 31, married 5 years; two children; youngest 3 years; miscarriage in June; menstruation regular; a profuse discharge since birth of last child.

Case 2.—Woman, 33 years of age; two children; youngest 4 years old; menstruates profusely; leucorrhoeal discharge since 14 years of age.

Dr. Kugler operated on a case of varicose veins, removing large portion of saphenous vein and grafting skin on an ulcer of the lower leg.

The annual banquet was served at the Otsego in the evening.

Dr. David Inglis and Dr. Andrew P. Biddle, of the Michigan State Medical Society, were the guests of honor.

R. GRACE HENDRICK, Sec'y.

SANILAC COUNTY.

The fourth annual meeting of the Sanilac County Medical Society was held in Sandusky, Mich., Dec. 4th, and was very successful, both in the matter of attendance and in the papers read and discussed. Dr. Angus McLean, of Detroit, presented a paper on "Gall Stones and Experiments on the Bile Secretion."

Abstract.—

The doctor presented several diagrams and tables of experiments on the biliary flow which demonstrated that the saline cathartics have a much more marked effect in increasing the biliary flow than the mercurials. The action of the salines is much more rapid. It was also demonstrated that the liver has not the same excretory powers as the other emunctories. Several patients were given methylene blue until the urine was highly colored, and no trace of the drug could be found in the bile. This was also true of other drugs experimented upon, especially the iodides. It was also demonstrated that the so-called biliary dissolvents and cholegogues have no effect upon the dissolution and removal of the stones. The improvement following their administration is due to the fact that they relieve the congestion and inflammation of the biliary tracts, thereby producing a latent condition of the gall stones which may last but a short time, or in other cases an indefinite period, and the patient must sooner or later submit to surgical interference for permanent relief.

C. F. Gates addressed the meeting on the "Modern Legislation As Affecting Physicians," and the retiring President, Dr. D. D. McNaughton, of Argyle, spoke in his address of the "Duties of Physicians Toward Each Other."

The following officers were elected for the ensuing year:

President—B. E. Bush, Croswell.
Vice-President—J. W. Weed, Brown City.
Secretary-Treasurer—G. S. Tweedie, Sandusky.
Delegate—L. E. Cochran, Peck.
Alternate—S. B. Young, Melvin.

GEO. S. TWEEDIE, Sec'y.

SHIAWASSEE COUNTY.

The annual meeting of the Shiawassee County Medical Society was held on Dec. 5, at which time the following were unanimously elected as officers of the society for the ensuing year:

President—Dr. J. N. Eldred, Chesaning.
Vice-President—Dr. A. L. Arnold, Owosso.
Secretary-Treasurer—Dr. J. A. Rowley, Durand.

Delegate to State Society—Dr. T. N. Youmans, Bancroft.

Alternate—Dr. J. C. Tufford, Owosso.

Board of Directors—Dr. Wm. Shaw, of Morrice; Dr. W. E. Ward, Owosso; Dr. E. J. Carney, of Durand.

The report of the Secretary-Treasurer showed the society to be in a very pleasing condition.

Dr. C. B. Burr, of Flint, Councilor for the Sixth District, was a welcomed visitor at the meeting and gave the society one of his pleasing and able talks.

A paper was read by Dr. T. N. Youmans, of Bancroft. A case in practice, on "Ectopic Gestation."

The following resolution was read and unanimously adopted by the society at this meeting:

Whereas, The medical profession has always been leaders in all sanitary matters, and ever been prominent in protecting the health and lives of the people; and

Whereas, The Proprietary Association of America, one of the most powerful organizations of its kind in the country, from a financial point of view, has subsidized the press, and throttled free speech by their "contract of silence," in order that they may pursue their despicable business of thriving on misrepresentation and fraud, and prospering by deceiving the sick and afflicted; therefore,

Resolved, That we heartily indorse and commend the action of the *Journal of the American Medical Association*, *Collier's Weekly* and *The Ladies' Home Journal* in exposing the "Great American Fraud" which is sapping the vitality, life and manhood of the people by creating appetites for alcohol, morphine and cocaine by means of their nostrums.

Resolved, That we publicly denounce newspapers and journals that enter into this "red letter" contract, and thus for pecuniary considerations willfully conspire to mislead and deceive their readers, and that we use our best endeavors to protect the community against the baleful influence of patent nostrums and proprietary frauds.

P. S. WILLSON, Sec'y.

ECTOPIC GESTATION.

T. N. YOUMANS, BANCROFT.

The subject of ectopic pregnancy has taken a more prominent place in our medical literature the past two or three years than before that time. It is the opinion of most writers on that subject that the average medical man is unable to recognize this condition, and cases that occurred in their practice have died from internal hemorrhage, sepsis, general peritonitis, etc., while perhaps a small percentage has recovered after a prolonged sickness, in which cases the products of concep-

tion have been walled off, absorbed by the system, or perhaps stuffed their way through the walls of the vagina or intestine directly, or after an abscess has developed and drained off that way.

That these cases are rare goes without saying. However, I was reading an article on the subject just recently in which the writer reported two or three cases that had come to his notice. This man claimed that this condition is not so extremely rare and gave what seemed to me to be a very high percentage of pregnancy cases in which the foetus attempted to develop outside the uterus. I do not remember the per cent. he gave but I think it was as high as 1 or 2 per cent. of all cases.

It seems to be the consensus of opinion that there is always some chronic inflammatory or other abnormal condition of the tube that prevents the impregnated ovum from passing into the uterus.

Patient, aged 22, a stranger to me, called me June 29th, 1905. She had been married two years, and one year previously had had a miscarriage at about the second or third month, but was not attended by a physician and, in fact, she had not consulted a physician since that time. Since the miscarriage she has had painful menstruation, but was quite regular as to time, duration of period, etc. With this exception she thought she had been in quite good health, though she suffered a good deal from neuralgia of the ovary, as she expressed it.

On this occasion her menstrual period came on ten days later than usual and it had already lasted nine days. The flow was not normal in regularity or amount. It would come on for a few hours or a day or so and stop for a while, and begin again in somewhat the same way during the whole nine days.

Besides this there was a pain in the left ovarian region, quite sharp at times, the relief of which she said was the reason she sent for me.

She said she did not think she was pregnant, and I could obtain no symptoms of pregnancy except that the pains made her a little sick at the stomach.

Digital examination revealed an enlarged and very sensitive tube on the left side, uterus about normal in size and cervix closed. From the history of the case since the miscarriage and the symptoms at the time, with the absence of clots or shreds of decidual membrane on the napkins I examined I was unable to make a positive diagnosis. I prescribed the usual treatment for painful and irregular menstruation and told them to report the following day. Her husband said that

evening that his wife was feeling easier and she thought she would get along as well as usual. I heard nothing more from the case until July 11th, twelve days later, when her husband came to me and said that his wife was having terrible pain and that she seemed very weak. He said she had been quite free from pain since I first saw her and that she had even been riding the roller or harrow the day before. But she had continued to have this same irregular and slight flow.

I found the patient in collapse, but at that time practically free from pain, though she was extremely sensitive, so much that I could not touch her from pubes to the fourth or fifth rib. Neither could she take a normal inspiration for the same reason. She had vomited a considerable amount that morning when she was having this pain. Abdomen was decidedly tympanic. Temperature 99.4, pulse very weak and rapid and expression anxious—quite a typical picture of acute general peritonitis at this time.

Eight hours later Dr. Rowley saw the case with me and we diagnosed it extrauterine pregnancy with ruptured tube, but too weak to stand an operation at that time. She received supportive treatment, liquid diet, saline enemas and was kept quiet as possible. She improved considerably during the next few days—there apparently having been no more bleeding internally, though she continued to pass some blood per vagina every day, and I obtained three or four distinct shreds of decidual membrane, which helped to confirm the diagnosis.

On July 19th, eight days after the rupture and twenty-one days after I first saw the case, we operated on her. Dr. Peterson, of Ann Arbor, Drs. Fair and Rowley and myself. On opening the abdomen Dr. Peterson removed about one and one-half quarts of blood clots, the products of conception, the ruptured tube, and ovary. The ruptured tube was found to be chronically inflamed, but Dr. Peterson thought best not to remove it. Patient rallied nicely from the operation and made a perfectly smooth recovery. She was out of bed in a little over three weeks in fine condition, and she has been in good health since that time.

TRI-COUNTY.

The annual meeting of the Tri-County Medical Society was held Oct. 4th, at Cadillac, and was well attended. The scientific program consisted of papers on "La Grippe and Influenza," by E. B. Babcock; "Burns," by Carroll E. Miller, and "Chronic Diseases of the Kidney," by S.

E. Neihardt. These papers were quite generally discussed, after which the following officers were elected and the society enjoyed a generous luncheon at the Globe restaurant:

President—E. B. Babcock, Kalkaska.

Vice-President—J. W. Decker, Lake City.

Secretary-Treasurer—W. B. Wallace, Cadillac.

Delegate—S. E. Neihardt, South Boardman.

Alternate—P. W. Pearsall, Kalkaska.

The next monthly meeting of the Tri-County Medical Society was held in Cadillac, Dec. 6th. A paper on the "Surgical Treatment of Tuberculosis," with report of cases, was read by Dr. McMullen, of Cadillac. This paper, as does every article on tuberculosis in any of its various forms, called out a full and animated discussion.

A motion was made and carried by the society thanking the *New York World*, *The Ladies' Home Journal*, *Collier's Weekly* and the *Journal of the American Medical Association* for the great interest they have taken and the course they are pursuing in calling the attention of the public to the abuses and dangers and the methods of the patent medicine companies.

It was decided to hold our social meeting Jan. 5th, 1906, at which time a theater party will be made up, to be followed by a banquet. This has proven one of the most interesting events of our yearly meetings. At this meeting not only the doctors but their wives are present. To show that our members are interested, we have two that seldom miss a meeting and yet have to come about forty-five miles. At our last meeting these two members were present, one from twelve miles beyond them, and one who has to drive twenty miles and then take the train the remaining twelve miles. Can any other county society in the State show a greater interest than that?

W. B. WALLACE, Sec'y.

Medical News.

Medical Affairs in the Arctic Regions.—

Some interesting notes made in a summer trip to North Greenland in the supply ship of the Peary expedition are published by Nicholas Senn, Chicago (*Journal A. M. A.*, Nov. 18 and 25). The Smith's Sound Eskimos met by him are the original unadulterated stock and present many peculiar and interesting racial features, especially as regards their habits and resistance to disease. To their exclusively carnivorous diet Senn ascribes not only their freedom from scurvy, the scourge of arctic expeditions, but also the absence among them of enlarged tonsils and cervical lymphatic glands and goiter, as well as their

splendid teeth and strong lower jaws. He suggests that the absence of all vegetable food from the diet has shortened the gastrointestinal canal, that the appendix, if present, is only rudimentary, and that the glands concerned in the digestion of starchy food have atrophied while those needed in the digestion of meat and the emulsification of fats are hypertrophied. The large percentage of oils in the diet acts as a laxative and protects them from a multitude of ailments with which the physician has to deal in our civilization. Their freedom from skin diseases, in spite of their uncleanly habits, is remarked, and Senn thinks that perhaps their avoidance of the external use of water may be a factor in producing this result. Tuberculosis is unknown among them in their northern home, though they quickly succumb to it when brought to our climate. Venereal diseases take with them a very mild course. Insanity is unknown among them, but in the long winters an anemic condition develops, and with it certain hysterical symptoms may occur, but the anemia never becomes chronic. During the summer there is a corresponding plethora and attacks of epistaxis are common. Degenerative diseases, arteriosclerosis, Bright's disease, etc., seem to be notably absent. Ordinarily, coughs and colds are unknown, catarrhal attacks follow visits to ships and are expected. Introduced epidemic disorders have played havoc among these people, and Senn mentions a sort of arctic dysentery that seems to have started from Finland and traveled nearly around the arctic circle. He suggests that the infection must have been conveyed over the vast uninhabited tracts by migratory birds. The universal epidemic, la grippe, has also helped to decimate these people. The Eskimos appear to have no native medicine, and their ideas of surgery are practically nil. Suppurating wounds, however, are rare in the germ-free atmosphere of their habitat. Tumors seem to be unknown, and Senn is inclined to attribute this, in part at least, to the highly iodized meat diet. Their obstetric methods are primitive and childbirth is not a severe operation. Children are nursed until two or more years old, and are generally healthy. He thinks uterine and ovarian diseases are uncommon. In conclusion, he mentions a peculiar distemper of dogs, resembling rabies, but differing in certain respects. Animal parasites, such as tapeworm, appear to be rare.

Centennial Celebration of a United Profession in New York.—As will be noted in our news department, the New York State Medical Association, at its annual meeting this week, again endorsed the report of the Committee on Amalgamation with the Medical Society of the State of New York. As will be remembered, a year ago the report of the committee was adopted but it was afterward discovered that certain legal formalities had to be gone through before the New York State Medical Association could give

up its existence and merge into the society. The legal difficulties involved notifying every member of the association and giving him the right to vote on the proposition. The result, judging from a telegram received as we go to press, shows that the vote in favor of amalgamation was almost unanimous. The other legal formalities, as we understand it, will necessitate but little time, and it is now hoped that the next annual meeting of the Medical Society of the State of New York, to be held in Albany next January—which will be its hundredth meeting—will be a grand centennial celebration of a united profession of the Empire State. The congratulations of the physicians of the entire country are extended, we are sure, to the members of the Association and of the Society who have worked so diligently to bring about this union.—*American Medical Association Journal*, October 21, 1905.

Orletus Palmer Eaton, M. D., died at Bloomdale, Mich., Oct. 4th, aged 60 years.

Helen Frances Warner, A. B., M. D., died at Detroit, Mich., Oct. 23rd, aged 62 years.

Ralph Gilmore Cook, M. D., married Miss Hardee Esther Mundwiler at Vicksburg, Mich., July 5th.

Elsie S. Pratt, M. D., who was last year in the New England Hospital at Roxbury, Mass., has recently located at Kalamazoo, Mich.

Beginning January 1, 1906, a new law requiring birth certificates will go into effect in all parts of Michigan. The blank contains, among other items, the exact date of birth, including the hour of birth. All of the certificates of the births occurring in January will be mailed by the local registrars to the State Department at Lansing on February 4, and when received the returns will be examined with interest to ascertain the name and place of birth of the first child born during the year and registered under the new law. Announcement will be made in the January issue of the *Michigan Monthly Bulletin of Vital Statistics*, published by the Secretary of State. The new law will mean a great increase in the accuracy of statistics and in the legal value of the records.

The copy of the *Transactions of the Michigan State Medical Society* for the year 1886 is missing from the library of the University of Michigan, and they are very desirous of completing their records and files. The edition is exhausted and the secretary of the State society cannot furnish the desired volume. Has any member such volume that he could and would donate to this library? The library of the university is a complete and up-to-date one and would appreciate very much this kindness. Address the Secretary of the Michigan State Medical Society, or Dr. W. J. Herdman, Ann Arbor.

With the January issue in preparation, we change the name of *The Alkaloidal Clinic* to one which more fully embodies the scope of our propaganda, namely, *The American Journal of Clinical Medicine*.

We have added to our present strong editorial force (all of which is retained, and with no change in management, or any financial change

whatever), Dr. Wm. J. Robinson of New York City, who will conduct a department of "Dermatology and Genitourinary Diseases;" Dr. Emory Lanphear of St. Louis, who will conduct a department of "Surgery, Obstetrics and Gynecology," and other departments will be added as arrangements can be made therefor.

With this additional force, the make-up of the journal will be improved in many ways. The best minds in this country and Europe will contribute articles which will be of inestimable value to the general practitioner who is willing to learn and anxious to keep up with the times. Our platform is as broad as the world. We believe the physician should pluck the health-giving fruit, it matters not from what garden. Active principle therapy, surgery, synthetic chemistry, massage, electricity, serum therapy, hydro-therapy, radio-therapy, etc., etc., all of these offer us in mighty weapons for our battle with the enemies of the human race, disease and death, and the new, enlarged, rejuvenated, and strengthened *Clinic* now called (as better indicating its scope), "*The American Journal of Clinical Medicine*," will include all these weapons in its armamentarium. It will give its readers all that is best in medicine, all that is best in the literature of the world, all that is most helpful, most practical.

The underlying principle of our great work is to safeguard the medical profession, to help them to higher planes of practice, to greater personal success, to bettered conditions in every possible way.

We are opposed to quackery, however and wherever it appears. We are opposed to proprietary advertising to the laity against the medical profession, to the detriment of the people.

We are opposed to the secret nostrum and the rum remedy, decrying their exploitation to the profession, and more especially to the people, as a body-wrecking, soul-destroyed crime that should be suppressed.

We believe in and stand for the honest doctor and the honest pharmacist; their interests are mutual, and we decry all attempts to estrange them.

We are fully alive to the great awakening of the public conscience now going on, proposing to stand on the very firing line of the movement for professional betterment and the public good, never taking a back step till a complete victory is won, and then we'll stick, too. We shall appreciate your co-operation.

DRS. ABBOTT & WAUGH, Editors.

Correspondence.

Traverse City, Dec. 1, 1905.

EDITOR:

Can you offer a reasonable explanation justifying the *indirect advertising* practiced by a number of men of the medical profession by allowing their names to appear in the lay press in connection with cases. We all deplore and discountenance advertising of the charlatan and the quack, yet if mere advertising renders us quacks then as sure as the earth is great many of us are quacks. Personally I have always con-

sidered the issuing of so-called "bulletins" over one's name, and granting interviews with lay reporters, knowing full well that the interview will appear over one's name, as deliberate and malicious a form of advertising as the posting of specially prepared, flaming sheets on the barns and telephone poles of the country side. The question is a serious one; for though we feel the responsibility of maintaining the dignity and sanctity of the profession it is idle to argue that these are the main incentives to induce us to enter and continue in the practice of medicine. We follow the avocation as a means of livelihood. And is it not plain to everyone that the man who advertises has a decided advantage, all other things being equal, over the strict custodian of the serious and, may I say *sacred*, features of the practice of medicine and surgery. The custom is not only unfair, but it militates against and tends to destroy all progress towards the ideal practice, and renders it almost impossible to establish and maintain the proper general respect for our high profession. I believe that leaders and recognized authorities should eliminate this practice from their plans, this being the only course which will bring about a universal observance of what we all know to be the proper custom.

I know of small communities where all advertising, direct and indirect, has been condemned, and this condemnation strictly observed in practice by men of the profession in these communities, yet I am convinced that the inevitable fate of such reforms will be failure unless the profession at large (all specialists, city men, professors and consultants included) fall strictly into line. Inconsistencies may thrive for a time yet the age is too intelligently progressive, commercially, to admit of the survival of institutions built on a sandy foundation. May the time be near at hand when this evil will be eradicated in toto from the practice of medicine.

Yours sincerely,

ALBERT H. HALIDAY.

DR. WM. J. HERDMAN, OF ANN ARBOR,
APPOINTED COUNCILOR OF THE
FIRST COUNCILOR DISTRICT.

Detroit, Dec. 19, 1905.

Wm. J. Herdman, M. D.,
Ann Arbor, Mich.

Sir: I have the honor to inform you that the President has appointed you Councilor of the First Councilor District, vice Leartus Connor, M. D., resigned, to serve until the House of Delegates shall have elected at the next annual meeting of the Michigan State Medical Society a successor to fill Dr. Connor's unexpired term (to 1909).

The Secretary of the Council has been notified of your appointment.

Permit me to extend my congratulations and my own pleasure at your selection, which I know will meet with the cordial approval of the profession of the State.

Respectfully,

ANDREW P. BIDDLE,
General Secretary.

Book Notices.

MINOR AND OPERATIVE SURGERY, INCLUDING BANDAGING. By Henry R. Wharton, M. D., Professor of Clinical Surgery in the Woman's Medical College of Pennsylvania; Surgeon to the Presbyterian Hospital, and the Children's Hospital; Consulting Surgeon to St. Christopher's Hospital, the Bryn Mawr Hospital, and Girard College; Fellow of the American Surgical Association. Sixth Edition. Enlarged and thoroughly revised. Lea Brothers & Co., Philadelphia.

In this edition the author has added considerable new material, which of necessity in a book of this kind must be brief. The chapters pertaining particularly to minor surgery are very satisfactory, and should be of considerable benefit to the undergraduate. The illustrations and descriptions of bandaging are very complete.

GENITO URINARY SURGERY AND VENEREAL DISEASES By William White, M. D., Professor of Surgery, University of Pennsylvania, and Edward Martin, M. D., Professor of Clinical Surgery, University of Pennsylvania. Illustrated with 300 engravings and fourteen colored plates. Sixth edition, thoroughly revised and enlarged. J. B. Lippincott & Co., Philadelphia and London, 1905.

In this work, which has long been recognized as a standard, Drs. White and Martin have made many and marked improvements in their revision, by drawing freely from the current literature. The section on prostatic hypertrophy has been largely rewritten, and many new illustrations have been added. A special feature is the index, which is a marked departure from the general run of indexes, and as far as we know is unique in that under each heading appears a short paragraph giving the different factors in the etiology, another devoted to symptomatology, treatment, etc. The index is more in the nature of an outline of the book, but in alphabetical order, and in itself would be very handy for quick reference, without referring to the text, if all that is wanted is to recall the general subjects.

LECTURES ON AUTO-INTOXICATION IN DISEASE, or Self-Poisoning of the Individual. By Ch. Bouchard, Professor of Pathology and Therapeutics; Member of the Academy of Medicine and Physician to the Hospitals, Paris. Translated, with a Preface and New Chapters added, by Thomas Oliver, M. A., M. D., F. R. C. P., Professor of Physiology, University of Durham; Physician to the Royal Infirmary, New-Castle-Upon-Tyne; Formerly Examiner in Medicine, Royal College of Physicians, London. Second Revised Edition. Crown Octavo, 342 pages, Extra Cloth. Price, \$2.00, net. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia.

The Lectures on Auto-intoxication, by Professor Bouchard, one of the greatest authorities on this subject on the continent, are here translated by Dr. Thomas Oliver, of the University of Durham. This edition is a revision of the original, with additions and revision by the translator, with the consent of the author. All additions by the translator are enclosed in brackets. The subject matter is very timely, especially in

the last few years, when more attention has been paid to auto-intoxication in disease. It is well handled, pleasantly and clearly written, and each chapter is preceded by a full synopsis, so that one may easily find any fact that he is looking up. The book contains, among others, chapters on the toxicity of urines, intestinal antiseptics, pathogenesis of uraemia, typhoid fever, jaundice and cholera; also an appendix containing a chapter on the "Natural Defenses of the Organism Against Disease." The book is a valuable one and deserves a wide circulation.

SHURLEY'S LARYNGOLOGY. A Treatise on the Diseases of the Nose and Throat for Student and Practitioner of Medicine. By E. L. Shurley, Vice-President and Professor of Laryngology and Clinical Medicine, Detroit College of Medicine, etc. New (2nd) Edition, revised. 225 illustrations in the text, and six plates in color.

This book is well known and deservedly a favorite of all who read it. The additional matter and thorough revision of the book has resulted in a Treatise on the Nose and Throat, which is one of the most complete and reliable a student or practitioner could have for his library.

A TEXT-BOOK OF PHYSIOLOGY: for Medical Students and Physicians. By William H. Howell, Ph. D., M. D., LL. D., Professor of Physiology, Johns Hopkins University, Baltimore. Octavo volume of 905 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$4.00 net; half morocco, \$5.00 net.

Dr. Howell's many years of experience as a teacher of physiology in several of the leading medical schools is evident throughout the entire work in the simple and clear style and in the practical handling of his subject. The author has laid main emphasis upon those facts and views which will be directly helpful in the study of general pathology and in the practical branches of medicine. At the same time, however, we are gratified to see that Dr. Howell has not ignored the experimental side of the subject. This we consider very important, for it has been through individual research that all the great advances in physiologic knowledge have been made. The entire literature of physiology has been thoroughly digested and the important views and conclusions incorporated. Indeed, the author has prepared a text-book which, while preserving the scientific spirit, is at the same time simple and modern in presentation. Every notable advance in physics or chemistry as influencing physiology has been carefully noted. Illustrations have been most freely used, greatly helping in understanding and supplementing the descriptions in the text. Especially valuable are those illustrations employed to make clear the more

intricate anatomic and physiologic mechanisms. Altogether, we consider it a very valuable book, because it is accurate, up to date, and highly practical.

A MANUAL OF DISEASES OF INFANTS AND CHILDREN. By John Ruhräh, M. D., Clinical Professor of Diseases of Children, College of Physicians and Surgeons, Baltimore. 12mo volume of 404 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Company, 1905. Flexible leather, \$2.00 net.

Dr. Ruhräh is to be congratulated upon the production of a manual that presents the subject of pediatrics in such a clear yet concise manner. He has outlined the therapeutics of infancy and childhood in a way that cannot fail to make for this work a place of first importance in its field. He has given explicit instructions for dosage and prescribing, and a number of useful prescriptions are appended. Infant feeding is given in detail. All the illustrations are practical, and include three inserts. A very valuable feature consists in the many references to pediatric literature so selected as to be easily accessible by the student, enabling him to ascertain the sum of knowledge on any given disease. We give Dr. Ruhräh's work our unqualified recommendation.

A TREATISE ON DIAGNOSTIC METHODS OF EXAMINATION. By Prof. Dr. H. Sahli, of Bern. Edited, with additions, by Francis P. Kinnicutt, M. D., Professor of Clinical Medicine, Columbia University, N. Y.; and Nath'l Bowditch Potter, M. D., Visiting Physician to the City Hospital and to the French Hospital; and Consulting Physician to the Manhattan State Hospital, N. Y. Philadelphia and London: W. B. Saunders & Company, 1905. Octavo of 1008 pages, profusely illustrated. Cloth, \$6.50 net; half morocco, \$7.50 net.

We have been anxiously awaiting the publication of Dr. Sahli's great work in English. Its immediate success in Germany will certainly be repeated in this country, and the English-speaking profession owe to Messrs. W. B. Saunders & Company a debt of gratitude for their enterprise. Not only does the distinguished professor exhaustively consider all methods of examination for the purpose of diagnosis, but the explanations of clinical phenomena are given and discussed from physiologic as well as pathologic points of view, and with a thoroughness never before attempted in any clinical work. The examinations of the stomach, sputum, feces, urine, and blood are exhaustively treated. There is an article from the pen of Dr. Theodore C. Jane-way giving a brief review of the investigations of American and English observers upon the value of the clinical estimation of blood-pressure, with a description of some newly devised instruments. Some of the new features in the chapter on urine examination are: Seliwanow's reaction for levulose. Bial's test for pentoses, and quantitative determination of urochrome after Klemperer. Osmotic pressure and cryoscopy of the urine are also discussed at length, and a description is given of Liebermann and Posner's method of staining urinary pigments. In the chemical examination much attention is directed to describing methods; and this is done so exactly that it is possible for the clinician to work according to these directions. The nervous system has been

very elaborately detailed, giving unusual space to electrical examination. Indeed, the American edition of this great work contains all the material of the new fourth German edition, with which it simultaneously appeared. Many new illustrations have been added by the editors. The work is indispensable to the practitioner.

A TREATISE ON DISEASES OF THE SKIN. New (4th) Edition, Revised. For the use of advanced Students and Practitioners. By Henry W. Stelwagon, M. D., Ph. D., Professor of Dermatology, Jefferson Medical College, Philadelphia; and Clinical Professor of Dermatology, Woman's Medical College, Philadelphia. Handsome octavo of 1135 pages, with 258 text-illustrations, and 32 full-page lithographic and half-tone plates. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$6.00 net; sheep or half morocco, \$7.00 net.

Four large editions of Dr. Stelwagon's work have been required in three years. Surely such a sale bespeaks a book of unusual merit. Notwithstanding the frequency of editions, Dr. Stelwagon has not lost this opportunity to bring his book up to the latest knowledge. The therapeutic use of the Rontgen rays, high-frequency current, and Finsen light have been accorded the increased attention their growing importance deserves. We notice the addition of new text-cuts, some thirty-eight in number, and six additional insert plates, all up to the high standard set by the text. The author, by the judicious elimination of redundant material, has kept the size of his book much as before, the increase being only some twenty pages. Indeed, it is remarkable the epigrammatic way that Dr. Stelwagon has of saying things—a style most desirable both in a text-book and a reference work for the busy practitioner.

THE PHYSICIANS' VISITING LIST. 1906. P. Blakiston Son & Co. Philadelphia, Publishers.

This is a very handy and convenient pocket visiting list, arranged so as to accommodate twenty-five names each week of the year. The little book also contains a calendar for 1906-1907, a table of incompatibility, a table of poisoning and the treatment, a dose table, and blank leaves for visiting list, memoranda, addresses of patients, nurses, accounts asked for obstetric engagements, vaccination, births, deaths, etc.

THE PRINCIPLES AND PRACTICE OF MEDICINE. Designed for the Use of Practitioners and Students of Medicine. By William Osler, M. D., F. R. S.; F. R. C. P. (London); Regius Professor of Medicine, Oxford University, Honorary Professor of Medicine, Johns Hopkins University, Baltimore; Formerly Professor of the Institutes of Medicine, McGill University, Montreal; and Professor of Clinical Medicine, University of Pennsylvania, Philadelphia. Sixth Edition, thoroughly revised, from new plates. D. Appleton & Company, New York and London, 1906.

This edition of Osler's Practice of Medicine being called for so soon after the last one speaks volumes for the value of the work. The book is so largely rewritten and revised that it is far better than even the last edition, and indeed it almost a new book. It still holds the front rank of text books on the practice of medicine, and testifies to the unusual ability and experience of the author. An eulogy, or even a review of the book, is not necessary, for there probably is not an English-speaking physician who has not heard of the work, and the large majority of the younger generation at any rate have used it as a text book in college and as a favorite reference book in practice.

Progress of Medical Science.

MEDICINE.

Pneumonia in the Young.—E. F. Wells, Chicago (*Journal A. M. A.*, October 14), points out that pneumonia is most frequent in early childhood, and next most frequent in full maturity from 30 to 50 years of age. He limits the term to pneumococcal infection and the fact that the pneumococcus is present in the mouths and upper respiratory passages of probably 50 per cent. of healthy persons accounts for the frequency of the disease. He has never failed to find the pneumococcus in several hundred examinations of persons who have had pneumonia. But he has not found it in recently born infants, which accounts for the infrequency of the disease in the very earliest periods of life. Once the throat becomes infected, however, the child is liable to pneumonia. The symptoms, high temperature, rapid pulse and breathing, pain, cough, the well-known expiratory grunt, the loss of appetite and the physical signs are described. The chill which is usually conspicuous in adults is absent in young infants and is infrequent in young children. The child is usually dull and apathetic, surface pallor is the rule. The duration of the disease is shorter in infants than in adults, and unless some complication like empyema intervenes, usually ends by crisis, or less frequently by lysis, in a week or more. Serious complications are more frequent in children. Serous pleurisy is less common than in adults. In case empyema intervenes, it is generally limited by adhesions, and if left alone usually evacuates itself into a bronchus or externally, and after a prolonged convalescence, complete or partial recovery occurs or the child may be worn out and die from exhaustion. These cases are usually recognizable, but, if in doubt, he advises using the exploring needle without hesitation. Other complications mentioned are otitis, with rare meningeal involvement, but usually recovery without impairment of hearing is the rule. Abscess, pericarditis, peritonitis, arthritis and endocarditis are rare. The prognosis of infantile pneumonia is unsettled by statistics, but Wells thinks that in private practice at least it is better than in the adult. The treatment necessarily must be more or less individual. The healthy child must be kept out of the way of the infected one. Exhaustion and too profound sleep must be guarded against in the infected child and the fluids of the body, whether intravascular or extravascular must be cleansed of the soluble toxins. Wells would give the child with pneumonia plenty of liquids to drink and, in addition, normal salt solution by rectum if necessary. Theoretically, this washes out the toxins. Practically, Wells employs and advises it. In his practice he gives moderately large doses of a reliable tincture of digitalis with the enemata if

they are retained. Other vaso-motor tonics may also be given. For high fever and restlessness, he prefers tepid sponging followed by alcohol, repeated as required. This failing, he uses guaiacol in suitable dosage to the thin skin of the flexures, supplemented by the ice cap at intervals. Oxygen inhalations are useful when the patient is not fretted by their use. Strychnia, aromatic spirits of ammonia, etc., may be used as required. In case of profound nervous failure with apathy, abdominal distension, etc., the little patient may be aroused by a stimulating glycerinated enema. The best medical attention and nursing and fresh air are required, and the child should be disturbed as little as possible. Complications should receive prompt and careful attention, and in those requiring it (especially if empyema be present, prompt surgical relief should be afforded.

Essential and Paroxysmal Tachycardia.—J. J. Morrissey says that tachycardia may be classed under two heads, namely, essential and paroxysmal, and this classification may be subdivided into true and false. The true tachycardia, according to the author, finds its best illustration in permanent disease of the cardiac musculature; the false may be produced by causes far removed from the heart. There are certain definite peculiarities which distinguish true tachycardia from the evanescent "heart hurry" so frequently produced by the most trivial causes. (1) The attack is sudden in its onset, reaching its height almost immediately; (2) the patient may or may not be entirely unconscious of the great degree of palpitation; (3) there is generally a definite period covered by the attack; (4) the reversion to the normal condition is as sudden as the onset, the vestiges of the storm through which the patient has passed rapidly disappearing. He then discusses the various forms of these types, and describes several cases which illustrate the differences in origin which may be exhibited. For example, one case was produced possibly by myocardial degeneration, and another by profound shock to the nervous system. In one case in which digitalis appeared to be of no avail, the fluid extract of convallaria majalis in five-drop doses, four times a day, seemed effective. He concludes by saying that the treatment of tachycardia is that of the condition from which it arises, or with which it is associated; but we must remember (1) that essential tachycardia is not accompanied with indigestion; (2) that paroxysmal tachycardia and the forms of tachycardia, accompanied by signs, no matter how slight, of Basedow's disease, are very frequently associated with dyspepsia; (3) that extreme cardiac arrhythmia frequently occurs without any indication of stomach disease, and (4) that tachycardia in its various grades is, however, often but a symptom, a prominent expression of a neuropathic state, which requires to be approached for treatment from many sides.—*Medical Record*, December 2, 1905.

SURGERY.

Transverse Incision in Abdominal Operations.—A. E. Rockey speaks of the development of abdominal incisions which have been becoming shorter and shorter until now appendectomies are done through one-and-one-half-inch incisions. The transverse skin incision represents a further advance, for the cleavage lines of the skin of the lower abdomen are parallel to the wrinkles, being transverse with a slight downward curve. The transverse incision has already come into extensive use for cases in which the abdomen is to be opened in the median lines, but the author applies the same principle to operations on the appendix and cecum, to exploratory laparotomy on the right side, and to colostomy and resection of the colon on the left side. The operation for ordinary acute, unruptured appendicitis, or the interval operation, is done through a transverse incision, slightly less than one and one-half inches in length, crossing McBurney's point at its center. This incision should lay bare the aponeurosis of the external oblique. Narrow retractors should be used and the incision completed on McBurney's lines. The advantage of this incision is that it falls along structural lines in the skin. The fibers of the aponeurosis of the oblique may be readily separated to twice the length of the incision, thus giving easy access to the transversalis, which, being the heavier and deeper, is then in line with the external opening, thus giving a maximum exposure with a minimum incision. In this operation the peritoneum is incised transversely. In fat subjects a two-inch incision is necessary. When it is desirable to obtain more room, it may be done first by extending all incisions along the lines described. If a very large exposure is necessary, the superficial incision is extended to the median line and the incision in the oblique carried across the rectus. The sheath of the rectus is then incised along the outer side of the muscle, both above and below the transverse incision. This incision will give ample access to the parts in the most complicated cases of appendicitis, and through it resection of the cecum and anastomosis for malignant disease may be done. In the few cases where abdominal drainage is necessary it may be effected either at the point where all the incisions cross, or through a small slit in the aponeurosis of the external oblique, where the outer end of the cutaneous and deep muscular incisions overlies each other. Several cases are described in which difficult operations were done through this incision.—*Medical Record*, November 11, 1905.

The Transplantation of Organs.—Alexis Carrell, Chicago (*Journal A. M. A.*, November 25), after noticing former work in this line, reports progress in experiments by himself and Dr. Guthrie at the Hull Laboratory of the University of Chicago in the autotransplantation and homotransplantation of organs. At first difficulty was experienced in adapting the organs to the new blood supply by vascular anastomosis, but after a new method of suturing had been perfected, the operation became comparatively easy. A few of the results are given. The kidney has been transplanted into the cervical region of a dog and a comparative study of the urine from the transplanted and the intact kidneys made the third day after the operation. The heart of a dog has been transplanted on to the carotid and jugular of another dog. The heart was beating and the blood circulating through it. With Dr. Guthrie, he established an arterial circulation through the right inferior thyroid vein of a dog which had symmetrical hypertrophy of the thyroid glands. Marked changes occurred, and it thus appears that the reversal of the circulation in only one vein of a gland may alter the physiologic process. It is possible that we may thus add to our knowledge of the pancreas, spleen, etc. Carrell suggests that organ transplantation may become of importance in a clinical point of view; that perhaps myxedema, idiocy, etc., may be thus modified, and that even heteroplasty with organs of the higher apes may be of practicable advantage. Much more animal experimentation, however, will be required before the method can be utilized on man. While it is impossible to say yet what practical results will be obtained, he thinks it possible and even probable that it will open up new fields in therapeutics and biology.

A Report of the Whitman Method of Treatment of Fracture of the Neck of the Femur.—

F. E. Aschcroft describes a successful application of the plan of treatment for this injury advocated by Dr. Royal Whitman of New York in the *Medical Record*, March 19, 1904. The essential features of the treatment consist in traction on the limb under anesthesia to reduce shortening, followed by abduction until the trochanter is in contact with the side of the pelvis so that upward displacement is impossible. The entire trunk and leg are then encased in a plaster dressing, which is cut away to the knee at the end of four weeks, and is entirely removed at the end of eight weeks, more or less. The author's patient sustained an intracapsular fracture of the neck of the right femur in addition to other injuries as the result of a mine accident, but by the Whitman treatment at the end of the eighth week he was able to cut down his own cast and move about on crutches. After a few weeks he discarded these for a cane, and now, four months after the accident, he has a scarcely perceptible limp, only slight pain at the knee, no appreciable shortening, and is back at his work in the mine as an able-bodied man.—*Medical Record*, October 21, 1905.

GYNECOLOGY AND OBSTETRICS.

Causes of Failure of Gynecologic Operations.—Noticing the frequent failure of gynecologic operations to give complete relief, W. E. Ground, Superior, Wis. (*Journal A. M. A.*, November 11), discusses what he considers some of the more frequent causes of the failures. His observation has led him to believe that almost every woman during her confinement suffers injuries to the pelvic floor from which she does not recover, and that immediate suture of apparent lacerations does not restore pelvic support in the vast majority of cases. Only when there is full restoration of anatomic structures to their normal relations is the mischief rectified, and when this is not the case visceral ptoses and their manifold neurasthenic and other accompaniments of morbid symptoms are met. Uterine displacements are also attributed by him largely to this cause. When the uterus is infected, heavy and traumatized, and its pelvic floor support is diminished, all these conditions need to be remedied before complete relief is afforded. The perfectly healthy uterus rarely causes symptoms, whatever its position. He has seen many cases of retroversion in young women that never produced symptoms until after pelvic floor relaxation occurred, unless infected with the gonococcus or pregnancy occurred with its consequences. Another source of failure after gynecologic operations, he says, is the so-called conservative operations on the ovaries. The vast majority of destructive lesions of the ovaries arise from uterine infection and it is very much of a question, he says, whether, after a uterus once becomes thoroughly infected, it ever fully regains its normal condition. Hence, he thinks, physicians are more likely to conserve ovarian tissue by doing a supravaginal amputation of the uterus and removing the Fallopian tubes and the accompanying lymphatic trunks, than by doing conservative work on the ovaries and leaving the uterus. In cases of double salpingo-oöphorectomy for septic conditions there is no question in his mind as to the propriety of also removing the uterus. Leaving a uterus, the source of infection, renders other measures of doubtful utility, and removing it permits cleaner work with fewer postoperative adhesions to cause trouble. It has been his practice for several years to remove it in these cases, and the results have been eminently satisfactory.

Aseptic Management of the Umbilical Cord.

—J. Thompson Schell (Philadelphia) advises the following method for aseptic management of the umbilical cord: As soon as the child is born

the umbilical cord is clamped with a hemostat about three inches from its abdominal attachment; another hemostat is then placed a short distance from the first one toward the placental end of the cord, and the cord is then cut between. The cord and abdominal wall immediately surrounding it are carefully washed in 1 to 4,000 mercuric chlorid solution. The hemostat is then grasped in the left hand, and a pair of scissors in the right hand follows the skin amniotic junction until this is severed completely in its entire circumference. Care must be taken not to cut too deeply, as the vessels of the cord are usually very close to the amniotic covering. So soon as the vessels have been exposed, the amniotic covering and the Wharton's jelly is stripped away in a direction from the abdominal walls and a ligature consisting of a piece of very fine (No. 0) sterile catgut is then thrown around the vessels, and the cord is severed close to the ligature. The stump is washed in mercuric chlorid solution, dried with a piece of sterile gauze, and dusted with any good antiseptic dusting powder. The baby should not be put in the tub for about a week, but should be given a lap bath; the stump must be washed frequently in a boric acid solution, and a small amount of dusting powder used with the usual sterile pad and the abdominal bandage.—*American Medicine*, December 2, 1905.

The Corroding Action of the Ovum in Ectopic Pregnancy.—J. Riddle Goffe, New York (*Journal A. M. A.*, Nov. 4), calls attention to recent researches that have demonstrated the destructive action of the impregnated ovum in its implantation on the uterine tissues. He utilizes this fact to explain certain cases in which, with the symptoms of ectopic pregnancy and the presence of more or less extensive pelvic hemorrhage, microscopic examination reveals no traces of the products of conception, or of the source of the bleeding. The effect of the corrosive action above mentioned, he says, is readily conceived in cases in which the implantation of the ovum is transferred from the uterus to the thin-walled Fallopian tube. While generally successfully accomplished, it must frequently happen that the corrosive process extends completely through the tubal wall or brings the intervillous spaces so near the surface that the blood pressure ruptures the peritoneum and causes serious hemorrhage. He gives an account of a case in which this seems to have occurred, and refers to another reported by Paul Zweifel, in which hemorrhage occurred eight days after the first omission of the menses and the ovum was found to have eroded completely through the tube and serosa into the peritoneal cavity. It would be a fair inference, he thinks, that when a woman has missed one menstrual period and is attacked with sharp hypogastric pain, collapse and vomiting, with marked feeble pulse, and without rise of temperature, that an erosion has occurred through a gravid tube, and the need of prompt operation should be at once suggested.

SYPHILIS AND DERMATOLOGY.

Maternal Syphilis.—This, as it seems to him, somewhat neglected subject is discussed (*Journal A. M. A.*, October 7), by G. S. Whiteside, Portland, Ore., in a practical way. He thinks the condition is often only recognized by the development of the taint in the infant after birth, and that such cases may be troublesome to the physician. He insists on the importance of being on the outlook for syphilis in the presence of obscure symptoms. When diagnosed in the pregnant woman mercury should be given promptly and fearlessly to protect the child. After birth the physician should give the syphilitic infant every care and mercury, and the child should recover in a few months. After thorough treatment the late forms of hereditary syphilis are rare.

Further Report of a Case of Primary Lupus Vulgaris of the Oropharynx and Nasopharynx Treated by X-Rays.—H. S. Birkett refers to a case of this condition presented before the American Laryngological Association in 1904, and reported in the *Medical Record*, December 24, 1904. Examination of the patient in December, 1904, showed that the former lesions in the oropharynx, nasopharynx, and cartilaginous septum had remained healed, but the process had broken out in the epiglottis and lower pharynx. The X-ray treatment is being given as before with satisfactory results and the lesions have made good progress toward healing. The author also speaks of the satisfactory results obtained by the X-rays in a case of lupus of the nose, and recommends more extensive application of the method.—*Medical Record*, November 4, 1905.

Heart Gummata.—F. Goldfrank, New York (*Journal A. M. A.*, November 4), reports a case of gummata of the heart and kidneys in which autopsy was performed at the pathologic institute of the University of Prague. The patient, a woman, died suddenly. Besides extensive gummatous deposits in the left kidney, there was a very large growth nearly filling up the left ventricle and encroaching on the cavities of the left auricle and the right ventricle as well. The pathologic findings were typical gummata, as they are found elsewhere in the body, and while the presence of a large number of Langhans' giant cells, as in this case, has been claimed by some to be against a diagnosis of syphilis no other diagnosis was possible. The history revealed syphilis of over eight years duration and "heart disease" for at least a year. The patient has been rejected for life insurance on this account, but there had

apparently been no symptoms of the condition appreciable by her or those about her. There is no doubt that this disease of the heart was the cause of the sudden death. Goldfrank compares the case with others of heart syphilis, and recapitulates some of the facts and conclusions of Stockman, who studied and analyzed fifty-six cases.

Mercury in Syphilis.—Otto Lerch (New Orleans, La.) explains why mercury is more effective when given by inunction than other methods. By inunction it is absorbed by the lymphatics and comes in direct and immediate contact with the virus. Enlarged glands will yield to inunction after resisting every other treatment. Lesions of bloodvessels and viscera, of bones and of the nervous system follow the lymphadenitis. Enlarged glands are found early in the disease and they may be palpated when every other symptom has disappeared. They contain the virus and a late secondary infection may be explained originating from them when the resisting power of the organism is lowered. Deep-seated glands cannot be inspected and it is therefore impossible to say when a patient is cured. Dr. Lerch urges that in tabes and paresis antiluetic treatment should be tried, as it is often impossible to make a positive diagnosis. A certain analogy between syphilis and tuberculosis has led him to give inunctions of iodoform in tuberculosis. He has had good results.—*American Medicine*, November 4, 1905.

Purpura Haemorrhagica During Pregnancy.—B. Van Sweringen (Ft. Wayne, Ind.) reports a case of purpura in a young woman of 25, which appeared in the fifth month of her first pregnancy. Hemorrhages occurred from the gums and nose, into the cellular tissue and skin, and appeared in the urine and vaginal discharge. From none of these localities was the bleeding very profuse or serious at any one time. Continuing, however, over a period of two or three weeks, considerable anemia was produced and the prognosis was rendered unfavorable because of the serious nature of the reported cases. Many of these show that premature labor occurs in those who develop purpura during pregnancy, and when this does supervene, death of the mother from hemorrhage generally follows. In Dr. Van Sweringen's case the hemorrhagic tendency subsided, the pregnancy went to term, the delivery was accomplished by forceps and was followed by no unusual hemorrhage, the puerperium being perfectly satisfactory. The treatment adopted consisted of rest in bed, 5 grain doses of calcium chlorid with 1 grain of extract of suprarenal gland every three hours and gelatin ad libitum. Several cervical cauterizations in the early months of pregnancy, done to relieve the severe nausea and vomiting, are looked upon as possible causes of the condition because of the purulent discharge which followed. Absorption of infectious material from the cauterized areas seems probable, although no leukocytosis was present. The case is cited to show that the prognosis of purpura may not be so bad as the literature of the subject indicates.—*American Medicine*, November 25, 1905.

NEUROLOGY.

Periodic Paralyses.—G. E. Holtzapple, York, Pa. (*Journal A. M. A.*, October 21), refers to the literature of this subject and gives an interesting account of a family of which he had the record for four generations and had observed for 22 years. Seventeen of the members of this family had the typical periodic paralysis, six of them dying in an attack. A number of others were sufferers from migraine. The attacks were of the characteristic type, the severer ones involving all the muscles except those of the face, eyes, tongue, the organs of speech and deglutition, and the rectal and vesical sphincters. Others were more or less permanently crippled by the disease. The pathology of the condition is discussed, the author being inclined to consider it as a vasomotor neurosis affecting the blood supply of the anterior horns, which are supplied almost wholly by the anterior spinal artery. The slow progressive permanent paralysis which occurred late in life in two of the cases reported, he thinks is due to slow degeneration of these horns from the frequent disturbances of nutrition. The paralysis in these cases seems to him to be closely allied to the local paralysis accompanying migraine, and thinking that there might be an active toxin from the gastrointestinal tract at work he made careful urinary examinations in six of the paralytic cases, in three of those suffering from migraine, and in five of the healthy members of the family. The average quantity of urine voided in all and the average output of urinary solids appeared to be the same. There was, however, a noticeable difference in the urea elimination in the paralytic individuals and in these directly after the attacks. It appeared that these patients do not excrete the normal quantity of nitrogenous metabolic products. It will require further observations to determine the exact degree of relationship, if any, between the diminished urea excretion and the paralysis. With the idea that the attacks were due to a vasomotor spasm he resolved to try large doses of bromid, preferably of potassium, 5ss, with one or two grains of citrate of caffein repeated in one or two hours. This gave decided relief, and helped to abort the attacks; small doses were never tried.

Speech Training as a Factor in the Development of the Feeble Mind.—Hudson-Makuen (Philadelphia) says defective speech is both a physical and mental sign of feeble mindedness, but it is by no means a pathognomonic sign, and it may be a cause and not a result of feeble-mindedness. Reference is made to the case of a

boy who was thought to be feeble-minded, and who is now a successful business man, as a result of the removal of some mechanical obstructions to the normal development of the organs of speech and the correction by training of the faulty mental and speech habit. A child's educability depends more than anything else upon his desire to be educated. The desire to speak is inherent in every normal person, and if this desire is not gratified the desire to be educated will be diminished or blunted. Reports are given of five cases illustrating the difficulties of diagnosis and prognosis.—*American Medicine*, December 2, 1905.

Defects of Will from a Medical Standpoint.

—H. T. Pershing, Denver, Colo. (*Journal A. M. A.*, October 28), defines volition practically as the idea of motion and locates its seat in the motor centers of the brain. The transformation of a sensation of motion into a memory and into the idea of its repetition and the cerebral mechanism involved is worked out by him in detail and practical deductions are drawn. The control of acts is best obtained, not by prohibitions that arouse the idea to be avoided, but rather by displacing it by something better. In hysterical paralysis, for example, the physicians should try to raise the emotional tone, then to excite the depressed sensory centers by electricity and passive motion, and then further to awaken the lost idea of motion by encouraging the patient to aid rhythmic passive motion by voluntary effort. The fundamental thing is to reawaken the lost sensations and ideas in the kinesthetic center. This is the main idea in his article, but he elaborates it to apply to the various neurasthenic defects of will, as well as to morbid impulses or obsessions which are to be combated, giving also in a suggestive way the general principles of treatment adapted to the several types of disordered volition.

Pseudosclerosis (Diffuse Sclerosis).—C. S. Potts and W. G. Spiller, Philadelphia (*Journal A. M. A.*, November 11), review the literature of the so-called pseudosclerosis of Westphal and report a case, with autopsy. They reproduce Franki-Hochwart's diagnostic comparison of the two types of pseudosclerosis and diffuse sclerosis and point out their clinical resemblance. Their pathologic similarity is even closer, as Dr. Spiller shows in his pathologic report, and remarks on the case. "It is evident," he says, "that sharp distinction between the findings of pseudosclerosis and those of diffuse sclerosis can not be made, and that the differences are probably chiefly in the degree of the alteration and not in the character of the alteration. The unusual firmness described in some of the cases of pseudosclerosis must be caused by a proliferation of the neuroglia, even though this proliferation can not be detected by the microscope." The case reported, he says, may be regarded as one of pseudosclerosis, or at least as a transitional form. The pathologic diagnosis was hardening of the brain and cord, chronic diffuse nephritis, gummata of the liver, acute serous pericarditis, and fibrinous pleurisy.

GENITO-URINARY SURGERY.

Hypospadias.—J. Coplin Stinson, San Francisco (*Journal A. M. A.*, December 2), describes his method of operating for hypospadias anterior to the scrotum in the following steps: First, he performs an external perineal urethrotomy and inserts a large tube into the bladder so that all the urine will be drained away, permitting the later plastic operations to heal primarily. Next he corrects the incurvation by dissecting up the urethra and dividing all constricting fibrous bands by transverse incisions so as thoroughly to straighten the organ. The third step is to form a new urethra by taking flaps from the mucous membrane and submucous tissues of the glans, and if necessary from the skin and subcutaneous tissues also. To cover the raw surfaces thus left on the glans and body, the hood is utilized. Lastly, the hump and transverse constriction on the upper surface of the body is corrected by making an inch long incision backward through the skin and subcutaneous tissues in the median line. This incision is at right angles to the transverse one made in separating the hood and is made long enough so that when its angle is bisected it can be drawn forward and sutured in the same line and continuous with the stitching of the preputial or transverse incision. This eliminates the convexity by diminishing the antero-posterior measurement of the penis and overcomes the existing lateral constriction in this region by increasing the transverse measurement to the normal condition. Each of these steps is described in detail, and the advantages claimed are: the surgery is done at one sitting, and takes but a short time, healing is durable in two to four weeks, the new canal retains its normal caliber and its coverings remain in their new positions. The preliminary urethrotomy and bladder drainage allow the plastic surgery to heal without the least trouble and the results, Stinson claims, are better than those of any operation hitherto described. The deeper structures are sutured separately and accurately with buried absorbable sutures so as to get perfect union. Sterilized catgut is used for the buried sutures. A short account is given of the first operation thus performed and each step is illustrated.

The Quick Curative Treatment of Gonorrhea.—Frederick A. Lyons reports a series of 400 cases of acute gonorrhea treated by the quick curative method the last ten years, in 384 of which, that is, 95 per cent. of them, the disease was cured in six days, and in about 80 per cent. in twenty-four hours. This method was published by him ten years ago, and consists of injections into the urethra of one drachm and a half of solution of silver nitrate, at first in 4 per cent. strength, later in 2 per cent., and 1 per cent. strength. In most cases a single injection was sufficient. It produced little pain, and after it the gonococci had disappeared from the secretion. If they were still found the injection was repeated. When not cured by three injections the treatment was not continued. The method depends for its effect on the fact that early in the disease the gonococci lie entirely upon the outer layer of epithelial cells, multiplying on them, de-

stroying their vitality and causing them to exfoliate. At this stage the microscope shows many gonococci on the epithelial cells. There follows congestion, afflux of serum, exfoliation of all the epithelium until the subepithelial tissue is laid bare. There will now be in the discharge few epithelial cells and many pus cells. At this time the gonococci penetrate the connective tissue. As long as there appear under the microscope epithelial cells studded with gonococci, so long are the germs within reach of the germicide, and the case is amenable to quick treatment. The exfoliation of the epithelium caused by the silver nitrate only quickens the exfoliation produced by the disease and destroys the gonococci and does no harm.—*Medical Record*, November 4, 1905.

Non-Gonorrheal Urethritis.—Henry G. Spooner first sketches the history of the study of urethritis, which was formerly confused with syphilis, and later was thought to be invariably due to the presence of the gonococcus. Now it is recognized that other micro-organisms may give rise to urethritis, as has been shown by the experiments of Bockhart, Légrain, and others who inoculated the urethra with various pyogenic organisms and obtained positive results. Such cases are not as rare as is usually supposed in this country, and they require consideration at the hands of clinicians. As the causes that contribute to the production of urethritis are so numerous as to be beyond our comprehension, the author prefers a classification based upon the clinical conditions in which cases of non-gonorrheal urethritis have been observed and he suggests the following classification: (1) *Urethritis caused by external irritation*: Coitus, catheterism, ungratified erections (?), masturbation (?), medicated injections. (2) *Urethritis caused by internal irritation, mechanical, chemical, and tonic, of constitutional origin*: Food, drinks, drugs, gout (?), rheumatism (?), arthritis diathesis (?), diabetes (?), herpes, mumps (?), syphilis (?), tuberculosis, typhoid fever (?). After the urethra has been chronically inflamed by a previous gonorrhea, or by any other cause, indulgence in coitus renders the urethra more susceptible to germ invasion. From the clinical point of view differential diagnosis is impossible, but as a rule in non-gonorrheal urethritis the incubation period and the course are shorter and less painful than in the specific form. Non-gonorrheal urethritis of constitutional origin must be treated so as to remove the exciting cause. When due to pyogenic bacteria the treatment is the same as in gonorrheal urethritis. Some cases of aseptic urethritis of unknown origin are not influenced by any form of treatment. In conclusion the author says: (1) The presence of pyogenic bacteria is not sufficient to cause urethritis until the vitality of the epithelium is lowered. (2) There are two varieties of non-gonorrheal urethritis of primary origin, those caused by external irritation, those due to internal irritation, chemic or toxic. (3) No incontestable cases of urethritis caused by gout, rheumatism, the arthritic diathesis, diabetes or mumps are contained in the literature.—*Medical Record*, November 11, 1905.

BACTERIOLOGY AND PATHOLOGY.

Bilharzia (Schistosoma) Hematobium.

Claude A. Smith (Atlanta, Ga.) reports seven cases found among the Boers and the South African negroes who were with the Boer War Spectacle at St. Louis during the World's Fair, and who also appeared in Atlanta during March of the present year. Out of 45 specimens of urine examined the eggs of the *Bilharzia hematobium* were found in seven. It was not possible to examine more than the 45 specimens on account of the short time the company remained in Atlanta, but many other members of the company gave histories indicating that they might harbor the parasite. The seven cases were apparently chronic, as microscopic inspection did not indicate the presence of any blood or blood clots in the urine. Dr. Smith directs attention to the fact that the eggs are more or less cylindric, one end being bluntly rounded, while the other runs to a point or "spine," and that the egg is not a flattened body as it appears to be when first viewed under the microscope. A description is given of the anatomy of the embryo and the hatching of the egg, the rupture of the shell apparently being due to the change in the specific gravity of the fluid surrounding the egg. In conclusion, the question is raised as to the advisability of permitting such a number of cases of this disease to drift about this country when there is uncertainty as to the possibility of contaminating our streams with this parasite, especially in view of the fact that we have no remedy for this disease.—*American Medicine*, October 14, 1905.

Uncinariasis.—Claude A. Smith, Atlanta, Ga. (*Journal A. M. A.*, October 14), reports the experiments made on a human being to confirm those of Loossas in demonstrating the possibility of hook-worm infection through the uninjured skin. The experiments were made with great care to avoid the objections made to those of Loossas that there was possible infection through other sources. He thinks, and his reports seem to justify it, that the experiments conclusively prove that general infection may take place through the uninjured integument. That this is the only route he does not say, but he believes it to be the mode of infection in the great majority of cases.

The Pathology of Intestinal Amebiasis.—In an elaborately illustrated article P. G. Wooley and W. E. Musgrave, of Manila (*Journal A. M. A.*, November 4), give the results of their studies of the pathology of amebic dysentery, describing their methods and findings in detail. They find that it is a peculiar ulcerative condition caused by

the *Amaba coli* (Losch), usually confined to the large intestine, and only rarely involving the ileum (7 in 200 cases) and the appendix (14 in 200 cases). Usually the entire bowel is affected (159 in 200 cases), though it may be limited to one or more portions, most commonly the cecum and ascending colon (23 in 200 cases). The ulcers show a tendency to be undermined, owing to lack of resistance of the submucous layer of the bowel. The organisms may enter the blood vessels very early in the disease and reach the submucosa without lesions of the muscularis mucosa. That it is a subacute inflammatory process is shown by the character of the exudate and infiltration, the early formation of granulation tissue, and the absence of leucocytic infiltration. Healing may be complete or there may persist a condition of chronic atrophic enteritis or chronic catarrh known as sprue or psilosis.

Pathology and Etiology of Human Vaccinia.

—W. T. Howard (Cleveland, O.) reports the results of his experiments. He concludes that in human vaccinia, vesiculation is well-established by the end of the second day. The changes in the epidermis correspond closely to those of variola, but are more severe and rapidly destructive of epithelium. The changes in the corium are much more intense and persistent in vaccinia than in variola. The primary cytoplasmic stage of cytocytes variolae occurs in human vaccinia. This, and the intensity of lesion (owing probably to the greater number of organisms introduced in vaccination) mark the main differences between variola and vaccinia. Granted that the groups of cytoplasmic and intranuclear bodies described by Councilman and his coworkers, by Calkins, and by Howard and Perkins in the skin lesions of variola and vaccinia are parasites causing these diseases, it seems that certain lower animals have the property of inhibiting the development of the sexual cycle, but permit that of the asexual cycle, which is pathogenic for both man and these animals, and gives rise to an immunity in man which protects against both cycles.—*American Medicine*, November 11, 1905.

Syncytioma Malignum.—Laura House Branson, Iowa City, Iowa (*Journal A. M. A.*, December 2), reviews the literature, the nomenclature, pathology and histology, diagnosis, etc., of this type of morbid growth and reports a case occurring in a woman, aged 31, a primipara, whose husband was the subject of secondary syphilis. The other peculiarities of the case were severe headaches for two months preceding delivery, which occurred at the end of the eighth month, the well-marked growth of the tumor at that time and the pronounced dilatation of the pupils which suggested to the physician the possibility of a metastasis to the brain. The patient died the third day after delivery. Dr. Branson asks whether the syphilis of the husband could have had anything to do with the formation of the malignant neoplasm in the wife, and whether or not such a condition as syphilis could have so affected the maternal nourishment as to favor the growth without showing the actual manifestations of the disease.

OPHTHALMOLOGY AND OTOTOLOGY.

Methyl Alcohol Amblyopia.—C. S. G. Nagel, San Francisco (*Journal A. M. A.*, November 18), believes that wood alcohol amblyopia sets in first through a defective local blood supply consequent on disturbances in the general circulation. The first symptoms are therefore due to what Graefe has described as ischemia of the retina, and it would be of great interest if contraction of the blood vessels could be ophthalmoscopically demonstrated during the attack. The later eventual attack of grave amblyopia Nagel attributes to the later cumulative action of the poison shown by Pohl. He has had the opportunity to follow up the later course of a case included in Buller and Wood's report (*The Journal*, October 1-29, 1904), and gives the history and treatment in detail. From his observation of the case he had become convinced that a simple glaucoma had developed. As the prognosis in the incipient cases is so bad, he would advise prompt iridectomy or at least keratotomy, to lower the intraocular pressure. He asks whether so-called simple glaucoma might not come about sometimes under normal intraocular pressure if the optic nerve or lamina cribrosa has lessened resistency. Settling this, he thinks, would help to clear up the vexed question concerning the therapeutic effect of operative measures in glaucoma simplex.

Dionin.—Although the general literature on dionin is enormous W. H. Snyder, Toledo, Ohio (*Journal A. M. A.*, November 18), says that he has been unable to find any reported experiments bearing on its action on tissues and cells, and cites his own, in which the drug was applied directly to the eye of a rabbit in larger quantities than would be required for an abnormal eye. Sections were made of the enucleated eye and the findings noted. He concludes that the action of dionin is purely local, its most marked effects are in eyeballs in which tension is increased, and he believes its entire action can be explained by saying it has some disassociating action on the intercellular cement substance, allowing a transudation of serum from a globe under pressure. Its analgesic effect is explainable by its lessening of tension and by the well known action of the derivatives of opium. He believes that it is only a lymph stimulant secondarily; after the edema the fluid is absorbed as lymph, as it would be in edema from any cause. He reports a case of complete absorption of the iris, lens and capsule under the use of dionin in a case of severe contusion of the eye without penetration. In iritis with adhesions and plus tension, it lessens the tension and permits absorption of the mydriatic with resulting relief of pain and dilation of the pupil. In corneal ulcers, especially of the peripheral type, the repair process begins as soon as the ulcer is cleared. The more recent the inflammation and the higher the tension the better the results from dionin according to Snyder's ex-

perience. In recent cases of corneal opacity he has had good results, but little or no benefit in old central opacities with low or normal tension. He has tried it in conjunctival hemorrhage without special success, the pressure element being evidently lacking. In beginning pannus, his experience has been more satisfactory than with any previous treatment, the lid of course being treated for the cause. In glaucoma he prefers dionin to eserine, relief from pain being marked, due, he thinks, to the mechanical relief from pressure. He early abandoned the use of solutions and now applies the powder directly to the cornea with better results. The article is illustrated.

Melanotic Choroidal Sarcoma.—L. H. Taylor, Wilkesbarre, Pa. (*Journal A. M. A.*, November 25), reports a case of melanosis of the choroid in which the diagnosis was made after pathologic examination. The patient did well for a few months after enucleation of the diseased eye, but succumbed within a year from sarcoma of the liver, the orbit remaining free from any return of the growth. He remarks that it is rather rare to see and to diagnose a case of pigmented sarcoma of the choroid and afterward to confirm the diagnosis by pathologic examination. Frequently, as in the case reported, the diagnosis has not been made until the eye has been enucleated on account of hemorrhagic glaucoma.

The Treatment of Perforations of the Tympanic Membrane, with Especial Reference to the Use of Gutta-Percha Tissue.—David G. Yates recommends the use of patches of rubber to be applied over the perforation, so as to make an air-tight joint, in the treatment of recent or long-standing cases of this injury. In applying a patch to the drum a piece of rubber is selected, which is twice the size of the hole to be covered. The canal and drum are thoroughly sterilized by syringing and mopping, and dried. If necessary, the edges of the perforation are pared or touched with nitrate of silver. The disc is carried into the drum by means of forceps or a cotton-tipped probe through a speculum, if small, without it if too large. It is then pushed into position and the edges pressed down firmly all around. No adhesive material is necessary. The rubber is most conveniently sterilized by keeping it in alcohol or other antiseptic for a few moments while other preparations are being made. The patch hastens the reparative process and at the same time effects an immediate improvement in the hearing. The author sums up the advantages of rubber tissue used in this way as follows: (1) It is convenient, easily sterilized and applied. (2) It is flexible, remains in place for a long time, and requires no adhesive material. (3) In large perforations it has the advantage over the various forms of artificial ear drums in not causing pain or irritation or setting up a discharge. It helps to heal at the same time that hearing is being improved. (4) Healing is rapid and the formation of scar tissue, which is likely later to give way or become the seat of calcareous deposits, is reduced to a minimum.—*Medical Record*, November 11, 1905.

THERAPEUTICS AND PHARMACOLOGY.

Scopolamin-Morphin Anesthesia.—Alfred C. Wood (Philadelphia) epitomizes his personal experience with scopolamin-morphin anesthesia and a brief study of the subject as follows: It is capable, in many cases, of producing a satisfactory surgical narcosis lasting several hours. When successful, the patient avoids the anxiety of even alarm often felt, before taking ether, and the nausea, vomiting and depression following its administration. If it should partly or wholly fail to anesthetize the patient, the surgeon may use ether or chloroform, with the assurance that the effect will be more prompt and satisfactory than when either is administered alone. When used in conjunction with ether or chloroform, it has been especially satisfactory. The time required to induce anesthesia was lessened, relaxation promoted, the secretion of mucus in the respiratory tract prevented, and the quantity of anesthetic required greatly reduced. To induce full anesthesia in the average healthy adult, 0.0006 gm. (1-100 gr.) scopolamin and 0.01 gm. (1-6 gr.) morphin should be given hypodermically 2 or 2½ hours before operation, and a second similar dose an hour later. The dose should be considerably reduced in children, feeble patients, and in advanced age. Its use is contraindicated in acute affections of the pharynx and larynx; operations involving the mouth or air passages; edema of the lungs, and in cases in which capillary hemorrhage may be a troublesome factor. A few deaths have been ascribed to this anesthetic. Both scopolamin and morphin are powerful drugs, and prudence demands that they be used with caution. The safety and success of this method depend upon having pure and reliable drugs, accurate dosage, and perfectly fresh solutions.—*American Medicine*, November 11, 1905.

The Vapor Method of Anesthesia.—James Taylor Gwathmey describes a modification of the Braun and Harcourt inhalers which he says combines all their good features in such a way as to present an improvement on the instruments now in use. The apparatus is intended to be used with ether and chloroform administered with or without the admixture of oxygen, but ethyl chloride or nitrous oxide may also be used in inducing anesthesia. The author expresses himself strongly in favor of the combination of oxygen and chloroform given by the vapor method, and states that it has been proven to be safer than ether and air. Anesthesia with his inhaler is better than that induced by the drop method, as the concentration of the anesthetic

mixture is accurately controllable instead of being dependent on the patient's manner of breathing, and while the gas-ether sequence is the quickest and safest routine method of anesthetizing, it is unphysiological, and will probably be superseded by the vapor method, or some other, in the near future. The advantages claimed for the author's method in addition to the exact control of the anesthetic vapor and the ability to change from ether to chloroform instantly at will, are the ease and pleasantness of induction, and the fact that excitement is usually absent or is very slight, the breathing is regular and natural, the lid reflex is never entirely absent, the breathing and pulse are usually normal, the amount of anesthetic used is very small, after-effects are absent in most cases, the technique can be acquired more rapidly than with other methods, and a continual narcosis may be kept up without danger to the patient. The apparatus is illustrated and details of its application under varying conditions, particularly in surgery about the mouth, are given.—*Medical Record*, October 14, 1905.

Alcohol as a Remedy in Disease.—T. D. Crothers (Hartford, Conn.) says that although many of the exhaustive studies in the laboratory and experiments of alcohol on animal life conflict with clinical experience, all seem to agree that alcohol depresses and is an anesthetic in its action. Within the last few years alcohol has become less and less popular as a drug in public hospitals, and where used, has been chiefly for external applications. The theory that alcohol is useful as a tonic for worn out elderly persons is rapidly passing away. Nearly all the old people's homes and hospitals for the aged have abandoned the use of alcohol for this purpose. Although medical literature still contains references to its value as a drug, its use is advised very timidly, and with so many qualifications as to leave much doubt concerning its real value.—*American Medicine*, November 18, 1905.

Value of Chloretone and Sulfonal in the Treatment of Insomnia.—J. Sanderson Christison (Chicago) says chloretone appears to possess a special affinity for the brain. In doses of 2 to 3.23 gms. (30 to 50 grs.) it usually induces sleep within 30 minutes which lasts from 5 to 8 hours. Its best results are obtained in the insomnia of agitated, melancholia, epilepsy, neurasthenia, and maniacal attacks with motor excitement. As much as 7.78 gms. (120 grs.) have been taken within 24 hours and followed by recovery. Sulfonal is usually prompt and effective in nervous insomnia when given in doses of 1.3 to 2.6 gms. (20 to 40 grs.) in solution. It is generally considered a safe hypnotic while the bowels are kept free by aperients and the kidneys continue to act in a normal way: 3½ ounces have been taken at one dose and followed by recovery.—*American Medicine*, December 2, 1905.

HYGIENE.

Quarantine, the Delirium Ferox of American Sanitation.—John S. Fulton (Baltimore, Md.) under this title discusses the "quarantine madness" prevalent in the Gulf States during the yellow fever epidemic. He believes that rational, uniform and effective inland quarantine such as can only be had through the medium of the Federal Government, would reduce to insignificant proportions or perhaps abolish forever the detention camp, cordon militaire, and other costly features of inland quarantine, and would concentrate the more intense activities on and immediately around the infected areas. A powerful arm of the Federal Government has already been authorized to render these services, and there is no field of practical work in which the Bureau of Public Health can win greater distinction than in the demonstration of definite and orderly procedures by which the spread of yellow fever can be closely limited, without seriously increasing the burdens of an infected locality.—*American Medicine*, October 14, 1905.

Disinfection of Dwelling Houses and Bedding.—A. H. Stewart (Philadelphia) has devised an apparatus for simple and effective disinfection of dwelling houses and bedding. The apparatus, an illustration of which accompanies the article, consists of a tank made of heavy brass, 18 inches high and 8 inches in diameter. A Boeckel air-pump attached to the side furnishes the air pressure and in this position also prevents the squirting of formalin solution into the face of the operator. There is no rubber hose on the machine and no rubber gaskets; the rubber tubing generally used being supplanted by an ordinary gas bracket with two joints, which can be set in any position so that the operator can remain in an erect posture at all times. The stream of formalin is broken up by a whirling device at the extremity of the gas bracket. A continuous fine spray without the mixture of air can be easily thrown to a distance of 10 to 20 feet, allowing the operator to cover the surface of the room before the gas becomes unbearable. When loaded with two gallons of solution the weight of the machine is 25 pounds. About 500 square feet of surface can be gone over in three minutes. With a 5 per cent. solution of formaldehyd gas a series of 2,000 tests showed 97 per cent. of surface disinfection. The results were equally gratifying from a series of experiments to test the value of this method in the disinfection of bedding. Dr. Stewart has found after years of experimentation with formalin and formaldehyd

gas machines that the most effective way to kill germs is to apply a 20 per cent. solution of formaldehyd gas in water to every portion of the room. With this large evaporating surface the results are more encouraging and no secondary infections occur.—*American Medicine*, November 25, 1905.

Report on the Yellow Fever in Cuba.—Juan Guiteras (Havana, Cuba) relates the circumstances of the last days of the yellow fever in Havana. He uses the facts as argument in support of the view that the mosquito is the only means of transmission of the disease. As some doubt has been expressed by some as to the demonstrative value of the experimental cases produced by him at Las Animas Hospital, he shows that there could have been no other source for the infection than the experimental application of the infected mosquito. He relates further how the disease has been introduced several times into Cuba without its ever taking a foothold in that old home of the disease, though the Hospital Las Animas may be looked upon as a veritable powder magazine charged with explosives in the shape of accumulated fomites.—*American Medicine*, November 25, 1905.

Cholera and Infected Water.—The experience of American army surgeons during the Philippine cholera epidemic of 1902-3 is narrated by Dr. C. E. Woodruff, U. S. A. Plattsburg, N. Y. (*Journal A. M. A.*, October 14.) The epidemic was started in Manila by infected food, and was mainly confined in that city to contact or food infection, the water supply being guarded by the military authorities from the first. In the provinces, on the other hand, most of the bad epidemics were from the water supply and were characteristically formidable. The life of the spirillum in water is short, and this gives the rational basis for the management of an epidemic. Of course the dangers from foods and contact, and from convalescents, who may carry the active germs in them for weeks must be guarded against, but the main thing is to guard the water supply. Patients must be isolated, discharges disinfected, and quarantine enforced against infected localities as far as practicable. The main reliance must be on boiling the water, and the more completely this could be enforced, the more successful was the management of the epidemic in the Philippines. The ease of personal prophylaxis, Woodruff says, was comforting, to say the least. With the use of only boiled water or bottled fluids known to be sterile, and of cooked or canned foods from scalded dishes, there was not the slightest danger. As regards treatment, Woodruff says, nothing can be done during the acute stage more than to make the patient as comfortable as possible. If he survives this, the judicious use of food and stimulants may save life. Encouraging results have been obtained from serum experiments, and there is some hope for the future from these. As it is, there is little fear of a cholera epidemic in any country where sanitary measures can be properly and fully enforced.